

NE PLUS ULTRA:

Douglas's = OR, Arithmetic. -

¹⁷³¹
A sure Guide to Youth

I N

ARITHMETICK,

S H E W I N G

How they may attain to a perfect Knowledge of all the common Parts of ARITHMETICK, the single and double Rules of THREE, direct and inverse, performed by one or two Operations; FELLOWSHIP single and double, with the Rule of PRACTICE.

Also concise and ready Ways for casting up Bills of Parcels, useful for Merchants in whole-sale Trade, or for Retailers.

Together with an easie Rule for casting up Things sold by the Thousand, or bought by the Thousand, and retailed by the Hundred.

Likewise simple Interest, so compendiously done, that all Persons in general may reap Benefit thereby,

To which is added

The Method which Bankers use for casting up Interest by Days.

By CHARLES DOUGLAS.



E D I N B U R G H,

Printed by R. FLEMING and Company, and sold by most Booksellers
in Town, 1731.

NE PLUS ULTRA:

A sure Guide to Youth



ARITHMETICK

THE NEW

How they may attain to a perfect Knowledge of all the common
Rules of ARITHMETICK, the single and double Rules of
Three, direct and inverse, performed by one or two Operations;
The new and simple method of doubling and halving, with the
Rules of Fractions.

It is now published in a new and ready method, containing up to the
present time, all the new and useful Rules, and is the best
Method of teaching the same, as it is the most easy and
the most perfect.

The new and simple method of doubling and halving, with the
Rules of Fractions, and the new and useful Rules, and is the best
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By CHARLES DOUGLASS

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To the HONOURABLE

Charles Douglas, Esquire,

Lieutenant Colonel of Lieutenant General *Tatton's* Regiment of Foot,

S the sincerest Testimony of my most humble Duty to, and ardent Affection for your Honour, these following Sheets, (the Exercise of those spare Hours from the cordial Attendance on the Service I daily ow you) are, with the profoundest Respect, and in all Humility, dedicated by,

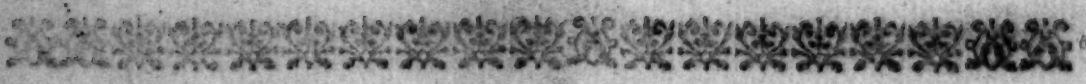
Your Honour's

most humble,

most obedient,

*and much obliged
Servant,*

CHARLES DOUGLAS.



To the Honorable

Charles James Fox, Esquire



Lieutenant Colonel of Lieutenant General
Royal Artillery's Regiment of Foot

With the sincerest testimony of my
most humble Duty to, and at-
tached Affection for your Honour,
these following sheets (the Exercise of
those spare Hours from the cordial At-
tendance on the service daily owing)
are, with the profoundest Respect, and
in all Humility, dedicated by

John Honors

most humble

most obedient

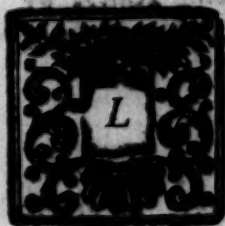
and much obliged

to you

CHARLES DOUGLAS



THE PREFACE.



LITTLE may be said by Way of Preface, in relation to the Usefulness of this Book, since the Title Page denotes, or says, that nothing of this kind can excel it: For in Addition there are various uncommon Tables, as first, The Division of a Pound Sterling, whose Utility is great in attaining to a perfect Knowledge how to work any Example in the Rule of Practice, by understanding rightly what Pence, or Pence and Half-pence, makes the even Parts of a Shilling, or of a Pound; for if you look upon the Top of the said Table, for 6 d. 4 d. 3 d. 2 d. 1 d. $\frac{1}{2}$, 1 d. 3 qrs. 2 qrs. 1 qr. you will find in the Column below, in the Angle of meeting with 1 Shilling, 2, 3, 4, 6, 8, 12, 16, 24, 48, the Number of Sixpences, Groats, &c. as they stand ranked, contained in a Shilling, and in the Bottom Column you have how many of these are in a Pound. Also in the same Bottom Column again, all the Way to the Left-hand of the Table, you have the Number of what Shillings, or Shillings and Pence, make the aliquot Parts of a Pound, such as 10 Shillings is one Half, 6 sh. 8 d. is one third, &c. And as an Introduction to the next Table, you have the intrinsic Value of a great Number of Pieces of Gold and Silver, both Foreign and Domestick, with the Method shewn how any long Sum may be easily added, by dividing it into Parts.

The

The next Table that follows is Troy Weight, where you have plain Directions how to understand it exactly; which serves for comprehending the Use of all the other succeeding Tables.

In Multiplication you are led through its whole Course by the Hand, and by easy Steps with great Dispatch: As also through Division the same Way, by giving Explanations how to work any Example contained in both. In which latter I have given you a Hint of Generals, or Things proper to be known and remembred on proper Occasions, as they are mentioned in the Book of Rates.

Again, as all those Questions in the Rules of Multiplication and Division, are performed in less Time and Room than what has been done as yet by any Author whatsoever, I have likewise followed the same concise Way in working those Examples contained in the following Rules, by Means whereof any typographical Errors may be quickly observed, and as easily amended.

And as to the Rule of Practice, to shew the great Inequality of working Examples from other Authors, I shall quote some Questions, or given Numbers, with their Prices, which Ayres, Kersey, Shelley, Cocker, Knott, Hill, Fisher, Webster, &c. have in their Books of Arithmetick, and leave to the Reader to judge which is most preferable.

Mr. Ayres, 2121 at 5 d. 254 at 9 d. 254 at 10 d. $\frac{1}{2}$, 614 at 11 d.
563 at 12 d. $\frac{1}{2}$, 254 at 15 d. 456 at 23 d. $\frac{1}{2}$, 214
at 7 sh. 11 d. 375 at 8 sh. 6 d. 295 at 12 sh. 9 d.
493 at 15 sh. 10 d. 176 at L. 3 7 10, 74 at L. 11
12 6.

Mr. Kersey, 782 at 8 d. 326 at 8 d. $\frac{3}{4}$, 720 at sh. 3 6 $\frac{3}{4}$, 540
at sh. 17 9, 517 at L. 3 17 5, 108 at L. 5 13 8.

Mr. Shelley, 735 at 7 d. $\frac{1}{2}$, 365 at sh. 1 6 $\frac{3}{4}$, 46 at sh. 4 7 $\frac{1}{2}$,
2900 at L. 2 14 7.

Mr.

Mr. Cocker, 67486 at $\frac{1}{4}$, 8347 at $\frac{1}{2}$, 5425 at $\frac{3}{4}$, 3470 at 1 *d.* $\frac{1}{2}$,
 6389 at 1 *d.* $\frac{1}{2}$, 573 at 1 *d.* $\frac{3}{4}$, 5316 at 2 *d.* 654
 at 2 *d.* $\frac{1}{2}$, 438 at 3 *d.* 438 at 4 *d.* 439 at 5 *d.*
 3574 at 6 *d.* 587 at 7 *d.* 520 at 7 *d.* $\frac{1}{2}$, 836 at 8 *d.*
 417 at 9 *d.* 386 at 10 *d.* 137 at 10 *d.* $\frac{1}{2}$, 534 at
 11 *d.* 431 at 2 *lb.* 4 *d.* $\frac{1}{2}$, 392 at *lb.* 6 9, 136 at
lb. 9 2 $\frac{1}{2}$, 370 at *lb.* 14 2 $\frac{1}{2}$, 213 at *L.* 1 13 4 $\frac{1}{2}$,
 416 at *L.* 2 9 3 $\frac{1}{2}$, 37 at *L.* 3 8 10 $\frac{1}{2}$.

Mr. Knott, 4536 at $\frac{1}{4}$, 1504 at *lb.* 9. 2. 7128 at *lb.* 1. 2 $\frac{1}{2}$. 4276
 at *lb.* 1. 6. 7856 at *lb.* 1. 0 $\frac{1}{2}$. 7100 at *lb.* 5. 10 $\frac{1}{2}$. 3097
 at *lb.* 1. 8 $\frac{1}{2}$. 5765 at *lb.* 1. 9 $\frac{1}{2}$. 909 at *lb.* 4. 10. 578
 at *lb.* 6. 9. 456 at *lb.* 8. 6 $\frac{1}{2}$.

Mr. Hill, 6725 at $\frac{1}{4}$, 672 at 5 *d.* 41 at 6 *d.* $\frac{1}{2}$, 672 at 7 *d.* 144 at 9 *d.*
 752 at 11 *d.* $\frac{1}{4}$, 143 at *lb.* 1. 4 $\frac{1}{2}$, 144 at *lb.* 1. 10 $\frac{1}{2}$, 141
 at *lb.* 2. 4 $\frac{1}{2}$, 144 at *lb.* 7. 1. 141 at *lb.* 9. 9. 150 at
lb. 11. 4. 751 at *lb.* 15. 6. 172 at *lb.* 17. 4. 375 at
lb. 17. 6. 144 at *L.* 1. 14. 9 $\frac{1}{2}$, 144 at *L.* 2. 17. 5.

Mr. Fisher, 426 at 6 *d.* 512 at 4 *d.* 246 at 3 *d.* 249 at 4 $\frac{1}{2}$ *d.* 426
 at *lb.* 4. 9 $\frac{1}{2}$, 216 at *lb.* 2. 3 $\frac{1}{2}$, 396 at *lb.* 7. 9. 426
 at 11 *d.* 942 at 11 *d.* $\frac{1}{2}$, 444 at *lb.* 5 9. 426 at *lb.* 3. 6.
 548 at *lb.* 12. 6.

Mr. Webster, 5243 at 1 *d.* $\frac{1}{2}$, 527 at 5 *d.* 436 at 9 *d.* 532 at 1 *d.* $\frac{1}{4}$,
 5437 at *lb.* 1. 7. 5276 at *lb.* 19. 9. 2364 at *L.* 4.
 18. 10 $\frac{1}{2}$.

*Here likewise are shewn, by the Help of Multiplication of Money, or
 the Rules of Practice, the best Methods for Mercers, Woollen and Linen
 Drapers, Haberdashers of Hats, Grocers, Hofiers, Fishmongers, Lea-
 ther Sellers, Pewterers, Tobacconists, Cornchandlers, Stationers and Brick-
 layers, &c. to cast up Bills of Parcels. And as I have narrated the se-
 veral Articles in each Bill, used by the foresaid Trades and Professions,*
tho'

tho' the Number of Yards, Ells, Pieces, Hogsheads, Barrels, Bags, &c. with their Prices; and the Amount of each Article is purposely omitted for the Learner's Exercise in Arithmetick, yet I have shewn how Receipts are to be made, when a Bill is paid in Whole, or in Part.

Had this Performance been wrought after the ordinary Method, used by Writers on this Subject, I may safely aver, that instead of 20 Sheets, of which this Book consists, 100 would not have contained the same.

I shall therefore add Nothing further by Way of Preface, but submit the whole Performance to the unbiass'd Judgment and Candor of the Publick.



NE

(in whole Numbers) serves to increase the Value of the next Figure or Figures that stand before it, as 0 is but Nine, but before it, that is, before the Figure 1, it becomes Ten, and so on. When another Figure or Cypher is annexed, they then are increased in their Value ten Times as 10 is but Ten, but before it, that is, before the Figure 1, it becomes Hundred, and so on. Again if any of the said Figures, stand in the third Place towards the Left-hand, they signify so many Hundreds as they are exprested in the said Figure, and so on. And if any of every Figure increases by a Tenfold Proportion from the Right-hand to the Left, according to the Place it is in, or stands in, it may be put in the next Place, in the second, or in the third, or in the fourth, &c. and in the fifth Place &c. &c. And therefore this is the manner to write the Value of a Figure, and is expressed by the following Table.

NE PLUS ULTRA: A sure Guide to Youth IN ARITHMETICK, Or

ARITHMETICK.



HIS noble Art or Science, which teacheth us the dextrous Handling of Numbers, is a Knowledge so necessary to all Men of Business, that scarce any Thing is to be done without it; and therefore we must observe that all Numbers are exprest by, or composed of these Ten Figures or Characters following, viz.

1, 2, 3, 4, 5, 6, 7, 8, 9, 0.
Nine of these are called significant Figures, to distinguish them from 0, Cypher, which of itself signifies nothing, but as it is placed
A (in

(in whole Numbers) serves to increase the Value of the next Figure or Figures that stand before it, as 9 is but Nine, but before Cypher, thus, 90, the 9 becomes Ninety, &c. We are to note, that every one or any of the above mentioned Nine Figures or Digits have two Values, one certain and another uncertain; the certain Value is when it stands alone by itself, the uncertain is, when joined or placed with other Figures or Cyphers, for when any one of these Figures stand alone, they signifie no more than their own simple Value, as 8 is but eight, 7 but seven, and 6 no more than six, &c. And this is the certain Value of a Figure: But when another Figure or Cypher is annexed, they then are increased in their Value ten Times, as 6, or 6 Units or Ones to 6 Tens or Sixty, 7 to 7 Tens or Seventy, and 8 to 8 Tens or Eighty. As thus, 67, Sixty seven, 78, Seventy eight, 89, Eighty nine, &c. Again if any of the said Figures stand in the third Place toward the Left-hand, they signifie so many Hundreds as they expressed Units or Ones; as eight is eight Hundred, &c. If any of them possess the 4th Place, towards the Left-hand, they are so many Thousands as they contain Units. And so any or every Figure increases by a Tenfold Proportion from the Right-hand to the Left, according to the Place it is found or stands in; so that 6 may be but six, or sixty, six Hundred, six Thousand, or sixty Thousand. In the first Place 6, in the second 60, in the third 600, in the fourth 6000, and in the fifth Place 60000, &c. And therefore this is the uncertain Value of a Figure: But the true Value of Figures in Conjunction may be fully learnt and understood by the following Table.

OF NUMERATION.

BY *Numeration* we learn the different Value of Figures by their different Places, and of Consequence to read or write any Sum or Number whatsoever.

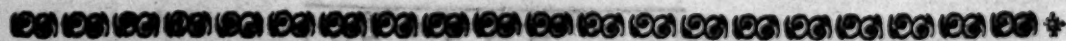


The

In the foregoing Table, whose Words must be got by Heart, as Units, Tens, Hundreds, Thousands, &c. for the easier reading any Number, you may see how each Place exceeds the former Ten Times, increasfing in Value towards the Left-hand.

The Denomination of the first Period, or of the first 3 Places is Hundreds, the Denomination of the second Period, or of the second 3 Places is Thousands, of the third is Millions. The Value of 503 being the 3d Number in the Table will be found to be in Words at length five hundred and three. Of the sixth, *to wit*, of 304050, the Value in Words at length will be Three hundred and four thousand and fifty. Of the ninth, *to wit*, of 807066509, the Value in Words at length will be Eight hundred and seven Millions sixty six thousand five hundred and nine. And thus may any Number be read with Ease, tho' a large one. And thus, are large Numbers or Sums expressed or set out in the Exchequer, Bank, Lottery Tickets, &c. as thus, N^o. 7,001—60,403—and 6,070,804. So that these three last Numbers, thus distanced out by Commas into Periods, was I to set down figuratively, Seven thousand and one Tickets, Sixty thousand four hundred and three Men, Six millions

seventy thousand eight hundred and four Pounds *Sterling*, they would stand for the easier reading thereof as above.



ADDITION

IS the putting together Two or more Numbers or Sums, so as their Total Value may be discovered or known.

Addition of Integers.

Herein we must always observe to set the Numbers to be added orderly one under the other, that is Units under Units, Tens under Tens, Hundreds under Hundreds, &c. Pounds under Pounds, Shillings under Shillings, Pence under Pence, &c. for it would be inconsistent with the Rules of Arithmetick to place Crowns under Pounds. And remember to carry 1 for every 10 that you find in the first Row or Rank of Figures being Units to the next Row of Tens, and the like from the Rank of Tens to the Row of Hundreds, &c. And whatever it makes in the last, you must set it down, amount to what it will.

EXAMPLE I.

A Parcel of Guineas being laid upon a Table, Sixty in one Place, Forty five in another, Thirty nine in another, Twenty eight in another, and Fifty five in another, and they all being put in a Heap together, the Number of the whole is required.

$$\begin{array}{r}
 60 \\
 45 \\
 39 \\
 28 \\
 55 \\
 \hline
 227
 \end{array}$$

Ans. Two hundred twenty seven:

EX.

(5) EXAMPLE II.

How many Soldiers are in all the following Army, which is composed of these five different Nations, *viz.*

<i>Spaniards</i>	:	:	:	75090
<i>Germans</i>	:	:	:	70057
<i>French</i>	:	:	:	64006
<i>British</i>	:	:	:	19009
<i>Danes</i>	:	:	:	07010
				235172

The Answer is Two hundred and thirty five thousand one hundred and seventy two Men.

In casting up each Example to know its Total, I begin at the Right-hand or Units Rank of the first Example, and say, 5 and 8 is 13, and 9 is 22, and 5 is 27, in which Row there are two Tens, and 7 over; wherefore I set down 7, just under its own Rank, and carry 2 to the next or last Row, and say, 2 that I carry and 5 make 7, and 2 is 9, and 3 is 12, and 4 is 16, and 6 is 22, and it being the last Row, I set down the amount, *viz.* 22: So that the Total Number of Guineas is found to be (by this Method) at the Bottom 227; and the next or second Example is found by the same Method to be 235172 Soldiers. And so the Total of any other Example of the same Kind, *viz.* simple Numbers of one Denomination, may be found.

Addition of Money.

In Addition of Numbers of divers Denominations, as Money, Weight, Measure, &c. Nothing of this Kind can be well performed, until I give you the natural Division of Integers, and the several

Great is the Use of the foregoing Table, by which we not only know, that 4 Farthings make one Penny, 12 Pence 1 Shilling, and 20 Shillings 1 Pound, but it likewise serves for knowing the Aliquot Parts both of a Shilling and of a Pound, absolutely necessary to be known before any Progress can be made in the Rule of Practice when we come to it, and by Means thereof is very serviceable for the reader knowing in Addition itself how many Shillings there are in so many Pence, as in the subsequent *Examples*.

EXAMPLES.

THE total Number of the following Farthings, Pence and Shillings laid out, is required in Pounds, Shillings, Pence and Farthings.

	L.	s.	d.	qrs.
Laid out for Leeks,	00	00	00	01
For Needles,	00	00	00	02
For Awls,	00	00	00	03
For Brimstone,	00	00	07	00
For Rice,	00	00	05	00
For Razors,	00	02	00	00
For Anchovies,	00	19	00	00
	L.	s.	d.	qrs.
	01	02	01	02

Having placed the Numbers given to be added in their Order, (*viz.*) Shillings under Shillings, Pence under Pence, and Farthings under Farthings; then, for every 4 Farthings carry one Penny, for 12 Pence carry one Shilling, and for twenty Shillings carry one Pound.

The Table is so plain and easy, that there is no need of Directions, for 'tis but guiding the Eye from the side Column to the Head,

Begin with the Farthings and say, 3 and 2 is 5 and 1 is 6 Farthings, set down 2 and carry 1 Penny to the Place of Pence; then 1 I carried and 5 is 6 and 7 is 13, set down 1 and carry one Shilling; then 1 I carried and 9 is 10 and 2 is 12, set down 2 Shillings and carry 1 Angel or 10 Shillings to the 1 that stands for 1 Angel, or in the Place of 10 Shillings in the last Article, and the Sum will be 1 *L.* 2 *s.* 1 *d.* 2 *qrs.* as before.

EXAMPLE 2d.

By _____
d. 677. L. 2 16 5

By

By the said Table we not only find, that

d.	th	
1	one 12	} Part { or aliquot Part of a Shilling.
1½	one 8	
2	one 6	
3	one 4	
4	one 3	
6	one 2	

Which is thus easily discovered by looking for 1 Shilling upon the Top of the Table, and running alongst the said Column towards the Right Hand, under 6 d. 4 d. 3 d. 2 d. 1½ d. and 1 d. we shall not only find 2, 3, 4, 6, 8, 12, which denotes the Truth thereof, but likewise in the above 2d Example we also find, that 10 lb. 6 sb. and 8 d. 5 sb. 4 sb. 3 sb. and 4 d. 2 sb. and 6 d. 2 sb. 1 sb. and 8 d. and 1 sb. 3 d. is $\frac{2}{3}$ of a Pound, that is to say, twice 10 sb. thrice 6 sb. and 8 d. 4 times 5 sb. 5 times 4 sb. 6 times 3 sb. and 4 d. 8 times 2 sb. and 6 d. 10 times 2 sb. 12 times 1 sb. and 8 d. and 16 times 1 sb. 3 d. are contained in a Pound Sterl. So that to add up the Number of Pence in the said second Example, is no more than Addition of simple Numbers, and is done with the like Facility as in the first Example of Addition: We shall therefore likewise say, that the Shillings and Pence that the said Pence amount to, being L. 2. 16. 5. equal in Value to 677 Pence, the Total of the whole, is Addition of several Denominations, and is easily added by observing the foregoing Directions following the Table.

EXAMPLE III.

Let the following Pieces of Gold, Silver, and Coppers Amount be required, when valued as follows,

B

A

(10)								
A Jacobus,	:	:	L. 1	05	0	Brought over	L. 5.	17. 0
A Carolus,	:	:	:	03	0	A Shilling,	:	0 01 0
A Guinea,	:	:	:	01	0	A Six-pence,	:	0 00 6
A Mark,	:	:	:	13	4	A Groat,	:	0 00 4
A half Guinea,	:	:	:	10	6	A Three-pence,	:	0 00 3
An Angel,	:	:	:	10	0	A Two-pence,	:	0 00 2
A Noble,	:	:	:	06	8	A Penny,	:	0 00 1
A Crown,	:	:	:	05	0	A half Penny,	:	0 00 0 $\frac{1}{2}$
A half Crown,	:	:	:	02	6	A Farthing,	:	0 00 0 $\frac{1}{4}$
				5	17			
				0		L. 5.	19.	4 $\frac{3}{4}$

If your Sum be long, you may point or divide it into Parts, and the Parts added together will be equal to the whole, which proves the Work as in the following

EXAMPLE IV.

			L.	s.	d.	qrs.	
A double Sovereign of Flanders,	:	:	1	08	06	0	
A Moydore,	:	:	1	07	00	0	
A Holland's Rider,	:	:	1	05	09	0	
A Pistole,	:	:	0	17	06	0	
A Flanders Albertus,	:	:	0	13	00	0	
A Hungarian Ducat,	:	:	0	09	08	0	
A Cuckeen of Venice,	:	:	0	09	07	0	
A Turkish Zechin,	:	:	0	09	00	0	
A Holland's Ducat,	:	:	0	08	04	0	
A Turkish Sultanine,	:	:	0	08	00	0	
A Venetian Zechin,	:	:	0	07	06	0	
				L. 08.	03.	10	

A

B

Brought

Brought from the 10th Page,							8	03	10
Emperor <i>Matthias</i> Guildér,	:	:	0	07	02	0			
A <i>Portbono</i> Guildér,	:	:	0	06	10	0			
A <i>Noremburg</i> Guildér,	:	:	0	07	01	0			
An half Cardinal Angel,	:	:	0	06	04	0			
A <i>Flanders</i> Ducatoon,	:	:	0	06	03	0			
A <i>Barcelona</i> Ducat,	:	:	0	05	04	0			
A <i>Specie</i> Dollar,	:	:	0	05	00	0			
A <i>Frankfort</i> Florin,	:	:	0	04	11	2			
A <i>Sarogoffa</i> Ducat,	:	:	0	04	11	0			
A <i>Palermo</i> Ducat,	:	:	0	04	10	0			
A <i>Messina</i> Ducat,	:	:	0	04	09	0			
A <i>Riga</i> Dollar,	:	:	0	04	08	0			
A <i>Seville</i> Ryal,	:	:	0	04	07	1			
A Piece of Eight,	:	:	0	04	06	0			
A <i>Lisbon</i> Ducat,	:	:	0	04	06	0			
A <i>Lucca</i> Ducatoon,	:	:	0	04	06	0			
A Rix Dollar of the Empire,	:	:	0	04	05	0			
A <i>Maximilian</i> Dollar,	:	:	0	04	05	0			
A <i>Venetian</i> Ducat,	:	:	0	04	04	0			
A <i>Rodulphus</i> Dollar,	:	:	0	04	04	0	2	03	00
A Prince of <i>Orange</i> Dollar,	:	:	0	04	03	3			
A <i>Leopoldus</i> Dollar,	:	:	0	04	03	1			
A <i>Ferdinando</i> Dollar,	:	:	0	04	03	0			
A Cross Dollar,	:	:	0	04	02	1			
A <i>Lunenburgh</i> Dollar,	:	:	0	04	02	0			
A Ducat of <i>Naples</i> ,	:	:	0	04	02	0			
A <i>Danish</i> Dollar,	:	:	0	03	11	0			
A <i>Zealand</i> Dollar,	:	:	0	03	00	0			
A <i>Hamburgh</i> Dollar,	:	:	0	03	02	0	1	15	05
A Ducat of <i>St. Mark</i> ,	:	:	0	02	10	0			
A <i>Palermo</i> Florin,	:	:	0	02	06	0			
A <i>Holland's</i> Guildér,	:	:	0	01	08	0			
A <i>French</i> Florin,	:	:	0	01	06	0			
A <i>Portuguese</i> Festoon,	:	:	0	01	03	0			
A <i>Leghorn</i> Livre,	:	:	0	00	09	0			
An <i>Italian</i> Ryal,	:	:	0	00	07	0			
A <i>Spanish</i> Ryal,	:	:	0	00	06	3			
A Mil-ree,	:	:	0	06	08	2	0	18	04

B 2

16 01 04

In this Example fourth, I have divided the Sums of the several Species of Money into 5 Parts, the first Division is from a *Flanders* double Sovereign to a *Venetian* Zechin, which is thus added up, saying 6 and 4 is 10, and 7 is 17, and 8 is 25, and 6 is 31, and 9 is 40, and 6 is 46. Now, considering how often times 12 is contained in 46 Pence, seeing 12 Pence is one Shilling, I find 3 times, and 10 Pence over; this 10 I set down, and carry 3 Shillings. Then 3 I carried and 7 is 10, and 8 is 18, and 8 is 26, and 9 is 35, and 9 is 44, and 9 is 53, and 3 is 56, and 7 is 63, and 5 is 68, and 7 is 75, and 8 is 83. I set down 3 Shillings, and carry 8 Angels or 8 times 10 Shillings, which, with the other 2 Angels, or 2 times 10 Shillings, make 10 times 10 Shillings or 10 Angels, whose half are so many Pounds, which here make 5. Then carrying 5 to the Place of Pounds, the Total will be found to be L. 8. 3 *sh.* 10 *d.* which accordingly is pointed off at a Side.

The 2d Division is, L. 2 18 08 $\frac{1}{2}$

The 3d Division is L. 2 05 00 $\frac{1}{2}$

The 4th Division L. 1 15 05 $\frac{1}{4}$

The 5th Division is L. 0 18 04 $\frac{1}{4}$

So that the total Sum of the whole Account is L. 16 01 04 $\frac{1}{2}$ and exactly agrees with the same, as if the whole Account had been added up at once, beginning from a Mil-ree to a double Sovereign.

Troy Weight.

		Grains,
	P. Wt.	24
Ounces,	20l	480
Pounds.	12l	240l 5760

By this Weight are weighed, Jewels, Gold, Silver, Pearl, Amber, Electuaries, Bread, Corn, and Liquors.

Note also, that 25 *lib.* is a Quarter of a Hundred of this Weight, 100 *lib.* is one Hundred Weight, and 20 Hundred one Tun of Gold or Silver.

Having

Having placed your Numbers in Order, that is, each under its own Denomination, then, for every 24 Grains carry one Penny Weight, for 20 Penny Weight carry one Ounce, for 12 Ounces carry one Pound.

EXAMPLE.

How much Silver in Bullion is bought in all by that Goldsmith who buys

	Lib.	Oz.	P.W.	Gr.
At one time, : : :	234	09	17	13
At another, : : :	26	10	19	17
At another, : : :	9	10	15	12

271 07 12 18.

Begin with the Grains, and say 12 Grains and 17 is 29, and 13 is 42; or you may say 2 and 7 is 9, and 3 is 12, and then coming down with the Tens, say 12 and 10 is 22, and 10 is 32, and 10 is 42, as before: So stopping at every 24, so many Grains making a Penny Weight, that is, at every 24 I make a Speck on my Nail, (not in the Sum, for that Way is not proper or handsome) and I find one 24 and 18 Grains over, wherefore I set down 18 and carry 1 Penny Weight to the Penny Weights. In Penny Weights work as in Shillings, in the Ounces work as in Pence, and in the Pounds as in Integers, and the Total will be 271 Lib. 7 Oz. 12 P. Wt. 18 Gr.

N. B. That you may know how many Penny Weight or Grains are contained in a lib. or Grains in an Ounce, look for a lib. and run alongst the undermost Column to the Right, and under Penny Weight and Grains marked upon the Head of the Table you will find 240 Penny Weight, and 5760 Grains contained in a lib. Also in the Column of Ounces, and under Grains, you will find 480, there being so many Grains in an Ounce. This Direction may serve for the right Understanding of all the following Tables.

Avoir.

Having placed your Numbers in Order, that is, each under its own Denomination, the Grains carry one Penny Weight for 20 Penny Weight carry one Ounce, for 12 Ounces

		<i>Drams</i>	
	<i>Oz.</i> 1	16	
	<i>lb.</i> 1	161	256
	<i>Stones</i> 1	141	2241 3584
	<i>Qrr.</i> 1	21	281 4481 7168
	<i>C.</i> 1	41	81 1121 17921 28672
	<i>Hbd.</i> 1	51	201 401 5601 89601 143360
	<i>Pipe or Butt</i> 1	21	101 401 801 11201 179201 286720
<i>Tun or Load.</i> 1	21	41	201 801 1601 22401 358401 573440

This Weight is commonly divided into Two Parts,
viz.

Avoirdupois great Weight.

By this Weight are weighed all Kinds of Grocery Goods or Wares subject to Waste, as Tobacco, Gunpowder, Sugars, Fruit, and Drugs; as also Butter, Cheese, Allom, Tallow, Flesh, Iron, Brass, Copper, Lead, Tin, or Pewter, Pitch, Tar, Rozin, Hemp, Flax, Sope, Salt, Wax, &c.

Avoirdupois small Weight.

Currants, Pepper, Ginger, Nutmegs, Mace, Cloves, Cinnamon, Silk, Musk, Ambergreece, &c.

Note, That in weighing at the Water-side, or elsewhere, they do not weigh by the Tun in great Weight, tho' some Goods are sold by it, as Iron, Logwood, Cheese, &c. but by Hundreds, Quarters, and Pounds, and afterwards computed by Tuns, &c.

Observe likewise, That 1 *lib.* 2 *Oz.* 12 *P. Wt.* Troy is equal to a Pound *Avoirdupois*, and a Pound Troy is about 13 *Oz.* 2 *Drams* and a half *Avoirdupois*.

(15)

A Pound Wt. Troy } A Pound Wt. Avoir. }	of Silver is worth } of Silver is worth }	L. s. d. L. 3 2 0 3 15 3	in Gold } in Silver }	weighs } weighs }	lb. oz. 1 11 2 26 04	Avoir. Wt. Avoir. Wt.
---	---	---	---	---------------------------------------	---	---

A Pound *Avoir du pois* is heavier than a Pound *Troy*, but an Ounce *Troy* is heavier than an Ounce *Avoir du pois*.

For 16 Drams carry one Ounce, for 16 Ounces carry one Pound, for 28 Pounds carry one Quarter, and for 4 Quarters carry one Hundred Weight.

E X A M P L E S.

A Grocer sends to his Friend, and a Merchant receives in a Compliment the following Sugar and Silk, how much is then sent and received in all?

C. qrs. lb. oz. dr.	lb. oz. dr.
123 3 27 15	7 14 15
64 2 27 13	33 12 11
5 1 25 14	3 12 15 12
194 0 25 10	354 11 06

of Sugar sent. of Silk received.

In the first Example of great Weight, I begin at the Right-hand, to wit, at the Denomination of Ounces, and say 14 and 3 is 17, and 3 is 12; then I come down with the Tens, saying 12 and 10 make 22, and 10 is 32, and 10 make 42 Ounces, which I set down upon the Nail of my Thumb; then having divided 42 first by 8, the Quote will be 5, and 2 remaining of the first Division, then I divide this 5 again by 2, or rather takes one half of 5, and the Quote will be 2, and 1 remaining, which 2 is the Number of Pounds in the 42 Ounces, and since 1 remained in the last Division, I multiply my first Divisor 8 thereby, which is still but 8, seeing 1 can neither multiply nor divide, and adds to it my first Remainder 2, and this will make 10 Ounces, see the Margin. The Reason why I divided first by 8 and then by 2, is because these two component Parts

1882 101 2881700 121 Pound

8 and 2, being multiply'd together, will make up 16, the Ounces in a Pound, and has the same Effect as if 42 had been divided at once by 16. Again 2 Pounds being carried to 5 in the Place of Pounds, make 7, and 7 is 14, and 7 is 21; then coming down with the Tens, I say 21 and 20 is 41, and 20 is 61, and 20 is 81 Pounds, which I likewise set down upon the Nail of my Thumb, and divide the same, first by 7, saying the Sevens in eight once, and one remaining, which joined to the other one makes 11, then the Sevens in 11 once, and 4 remains of the first Division. Having then divided this 11 again by 4, since 4 Times 7 make 28, I find the Quotient is 2, and 3 remaining, by which three I multiply my first Divisor 7, and it makes 21, to which I add my first Remainder 4, and it will make 25: So by this Means I conclude, that in 81 Pounds there is just 2 Quarters and 25 Pounds over; so setting down 25 Pounds, I carry 2 Quarters to the Place of Quarters, and work as in Farthings in Addition of Money, and as to the Hundreds they must be wrought as Integers; so will the Total be 194 C. 0 Qrs. 25 lb. and 10 Ounces of Sugar sent in all.

In the Example of Silk in small Weight, the Method laid down in dividing by 16 in great Weight may serve sufficiently for the right Management of that Addition. I might here also give the several Examples of other Additions, such as Apothecaries and Wooll Weight, Cloth, Liquid, Dry, Square or Superficial, and Long Measures, of a Gros and Time, &c. But the same Method serves for any of them, having respect to the several Tables of Quantity belonging to those several Denominations of Addition abovementioned, which are as follows, viz.

Apothecaries Weight.				
				Grains
				20
				Scruple
				60
				Dram
				31
				480
				Ounce
				81
				24
				5760
				Pound
				121
				961
				2881
				5760

Cloth Measure.

	Yards		Ells Flem.		Quar.		Nails	
Ells English	1	1 1/4	1	1 1/2	1	3	1	12
Tards	1	1 1/2	1	4	1	16		
Ells English	1	1 1/2	1	5	1	20		

By this, Lace, Holland, Cambrick,
Muslin, Arras-hangings, Damask,
Velvet, Plush, Brocad, Broad-
cloth, Linen, and all Sorts of Silks
and Ribbons, &c. are measured
As 4 Nails or 9 Inches make 1 *qr.*
of a Yard,

4 Quarters or 36 Inches 1 Yard,
5 Quarters or 45 Inches 1 Ell
Englisb,

3 Quarters or 27 Inches 1 Ell
Flemish ;

So 6 Quarters or 54 Inches make
1 *French Ell.*

Tables of liquid Measure.

Liquid Measure is of two Sorts, *viz.* one for Wine, Brandy, &c. and the other for Beer and Ale.

[illegible]

Wine Measure.

	Pints			
	Gal.	1	8	
Rund.	1	18	1	144
Bar.	1	1 $\frac{1}{2}$	131 $\frac{1}{2}$	1 252
Ter.	1	1 $\frac{1}{4}$	2 $\frac{1}{4}$	1 421 336
Hds.	1	1 $\frac{1}{2}$	2	1 3 $\frac{1}{2}$ 1 631 504
Punch.	1	1 $\frac{1}{2}$	2	1 2 $\frac{1}{2}$ 1 4 $\frac{1}{2}$ 1 841 672
Pip.	1	1 $\frac{1}{2}$	2	1 3 1 4 1 7 1 126 1 1008
Tun.	2	1	3	1 4 1 6 1 8 1 14 1 252 1 2016

Honey, Oil, Perry, Cyder, Mum, Mead, Canary, Malaga, Moselle, Rhenish, Florence, Champagne and Burgundy Wines, Brandy, Rum, Geneva, Uisquebaugh, and all Sorts of strong Waters are measured by this Measure.

Note, That sweet Oil hath 236 Gallons to the Tun, but Oil from Greenland hath 252 Gallons to the Tun.

Note, The Wine Gallon contains 231 cubick or solid Inches, by which all Liquids are measured, except Beer and Ale.

Beer Measure.

	Pints			
	Qts.	1	2	
Pot.	1	2	1	4
G.	1	4	1	8
Firk.	1	8	1	36 1 72
Kild.	1	8	1	36 1 72 1 144
Bar.	1	2	1	4 1 36 1 72 1 144 1 288
Hd.	1	2	1	4 1 8 1 72 1 144 1 288 1 576

By this, strong, mild and small Beers are measured. Note, The Beer and Ale Gallon are the same, viz. 282 solid Inches, but with this Difference, i. e. the Barrel of Beer contains 1128 solid or cubick Inches, or 4 Gallons more than the Barrel of Ale.

The Difference betwixt the Beer and Ale Gallon is thus: As 8 Gallons of Ale make a Firkin, so in a Barrel of Ale there are 32 Gallons
64 Pottles
128 Quarts
256 Pints.

*Dry Measure as used in**England.*

	Pints			
	Gal.	1	8	
Pecks	1	21	16	
Bush.	1	41	81	64
Strikes	1	21	81	161 128
Combs	1	21	41	161 321 256
Qrs.	1	21	41	81 321 641 512
Wys.	1	51	101	201 401 1601 3201 2560
Leff.	1	21	101	201 401 801 3201 6401 5120

By this all dry Substances, as Corn, Salt, Sand, Rapeseed, Lime, &c. are measured.

Scotland.

	Forperts			
	Pecks	1	4	
Firlots	1	41	16	
Bolls	1	41	161	64
Chalder	1	161	641	2561 1024

By this, Wheat, Oats, Rie, Barley, Beans, Salt, Lint seed, and Mustard seed, &c. are measured.

Square

Square or superficial Measure.

				Sq. Feet, 1	Sq. Inches,
				91	144
	Sq. Yards, 1	2 $\frac{1}{4}$	251	1296	
	Sq. Paces, 1	10 $\frac{89}{100}$	30 $\frac{1}{4}$	3600	
	Sq. Poles, 1	401	435 $\frac{1}{100}$	272 $\frac{1}{4}$	39204
	Sq. Roods, 1	401	435 $\frac{1}{100}$	12101	108901
	Sq. Ac. 1	41	1601	1742 $\frac{1}{100}$	48401
				435601	6272640
M.	16401	25601	1024001	11151361	30976001
				278784001	4014489600

This of superficial Measure, is that wherein Length and Breadth is considered, as in the measuring Board, Glass, Pavement, Wainscot, Tiling, Plaistering, Flooring, &c. By the foregoing Table you are informed, what a Pole, Perch, or Rood is, whereby you may know, that 40 Square Poles is a Rood. Now a Rood or Pole is a Superficies, very aptly resembled by a geometrical Square, every Side thereof being Five Yards and an half in Length, 40 of them is a Rood, and 4 Roods an Acre; so that a Superficies that is 40 Perches long, and 4 broad, is an Acre of Land, the Acre containing in all 160 Square Perches.

Note, That the solid Foot is 12 Inches long, 12 Inches broad, and 12 thick, or 1728 solid Inches, used in measuring Timber, Stone, &c.

Long Measure.

								B. Corns
							Inches 1	3
							Palms 1	31
							Spans 1	91
							Feet 1	121
							Cubits 1	181
							Tards 1	361
							Ells 1	451
							Paces 1	601
							Fath. 1	721
							Per. 1	1981
							Fur. 1	23760
Miles.	813	2018801	10561	14081	17601	35201	52801	70401
								1211201
								633601
								190080

C 2 28 1 2 1 22/100 This

This Table is deduced from a Barley Corn taken out of the Middle of the Ear, and well dried. Note, That 3 Miles make 1 League, 20 Leagues, or 60 Miles, 1 Degree, and 360 Degrees the supposed Circumference of the Earth and Sea.

5 Yards and an half	}	make	1 Pole, Perch, or Rood,
40 Poles			1 Rood or Quarter of an Acre,
160 Poles in Length and 1 in Breadth			1 Acre,
80 Poles in Length and 2 in Breadth			1 Acre,
40 Poles in Length and 4 in Breadth			1 Acre,
4 Poles in Length			1 Chain,
10 Chains in Length and 1 in Breadth	}	make	1 Acre.

Of a Gross.

		Pieces or Things
	Dozens	12
Small Gross	12	144
Great Gross	12	144
		1728

GOODS sold by the great Gross.

Buttons of Metall, Glafs, Thread, Silk or Hair, Beads of Bone, Box, Glafs or Wood, Inkle, Cap-hooks, Chess-men, Tobacco-pipes, Combs of Light or Boxwood, Thread or Silk Points, Playing-cards, &c.

GOODS sold by the small Gross.

Tobacco-pipes, Tinder Boxes, Buckles of some Sorts, Wash-Balls, Inkhorns, Bodkins, several Sorts of Knives, Comb-cases, &c.

Time.

Seconds

		Minutes	60
	Hours	60	3600
Days, Hours	24	1440	86400
W. D. H.	7	168	10080
Year	365	6	187661525960

In

In the ordinary Computation of Time, the Year is divided into 12 unequal Calendar Months, whose Names and the Number of Days that each containeth, are as followeth, viz.

	Days
<i>January</i> , so called from the God <i>Janus</i> ,	31
<i>February</i> , from <i>Februo</i> , to purify, because the Feasts of Purification were celebrated in that Month,	28
<i>March</i> , from <i>Mars</i> ,	31
<i>April</i> , from <i>Aperio</i> , to open, because this is the chief Part of the Spring, in which the Buds and Flowers open and disclose themselves,	30
<i>May</i> , from <i>Maia</i> the Mother of <i>Mercury</i> , according to <i>Plutarch</i> ,	31
<i>June</i> either comes from <i>Juventus</i> , because this is the youthful and gay Part of the Year, or else 'tis a Contraction of <i>Junonius</i> , and dedicated to the Goddess <i>Juno</i> ,	30
<i>July</i> , from <i>Julius Caesar</i> ,	31
<i>August</i> , from <i>Augustus Caesar</i> ,	31
<i>September</i> ,	30
<i>October</i> ,	31
<i>November</i> ,	30
<i>December</i> ,	31

These four last Months are denominated as they stood in Order from *March*, as *September* the 7th Month, &c.

365

So that the Year containeth 365 Days and 6 Hours, but the 6 Hours are not reckoned, but only every 4th Year, and then there's a Day added to the latter End of *February*, by which Means it contains 29 Days, and that Year is called Leap Year, and containeth 366 Days.

How

How to know what Days are contained in each Month of the Year, according to this good old Verse. The Days of the Week were called from the Heathen Gods, as follows,

Thirty days hath September, April, June and November,
February hath 28 alone, and all the rest thirty and one,
Which when Leap Year it be, 29 Days make it that
do ye.

Note, Any Year of God divided by 4 shews (if nothing remains) that 'tis Leap Year.

Sunday	}	from	}	the Sun.
Monday		the Moon.		
Tuesday		Mars.		
Wednesday		Mercury.		
Thursday		Jupiter.		
Friday		Venus.		
Saturday		Saturn.		

How to prove Addition.

In all Additions, whether simple Numbers, that is, Numbers of one Denomination, or in Examples compound, that is of divers Denominations; as Pounds, Shillings, Pence, and Farthings, or Yards, Quarters, and Nails, Cloth Measure; I say, in these or any other Examples, the true and best Method of Proof is to cast the same downwards (beginning at the Top) as you did the same upwards, (beginning at the Bottom) and if it proves the same Total, the Work is infallibly right, and beyond any Contradiction, and is much better and more feasible than the common Methods used in Schools of making two Totals, by omitting the upper Line in the second, which is altogether impracticable in real Business.

EXAMPLES.

		L. s. d.		Y. q. n.
The Value of	Gold	1 Pound is worth	48 0 0	at one Time 74265 1 2
		1 Ounce	4 0 0	at another 6789 3 2
		1 Penny weight	0 4 0	at another 012 2 3
		1 Grain	0 0 2	at another 45 2 1
	Silver	1 Pound is worth	3 0 0	at another 6 3 3
		1 Ounce	0 5 0	at another 0 3 3
		1 Penny weight	0 0 3	at another 0 0 2
		1 Grain	0 0 0	
	Sum		55 9 5½	Sold in all 81232 2 0
	Proof		55 9 5½	Proof 81232 2 0

SUB.

SUBTRACTION.

Subtraction teaches us, by taking a lesser Number or Sum from a greater, to find the Remainder or Difference.

Subtraction of Integers.

Observe carefully to place Units under Units, Tens under Tens, Hundreds under Hundreds, &c. And in case of Want in subtracting, borrow 10, and for every 10 so borrowed, pay one in the next Place.

EXAMPLES.

(1)

Suppose I have lent to my Friend, L. 324, and that he has paid me L. 175, how much does he still owe me?

Lent,	L. 324
Paid,	175

Owing still, L. 149

(2)

Bought 5005 Dozen of Stockings, of which I have sold 4108 out again, what remains unsold?

Bought,	5005
Sold,	4108
Unsold,	897

In the first Example say, 5 from 4 I cannot, but 5 from 14, refts 9; then go on saying, 1 I borrowed and 7 is 8, 8 from 2 I cannot, but 8 from 12 refts 4; lastly, 1 I borrowed and 1 is 2, 2 from 3 refts 1: So will the Remainder be found L. 149 to pay.

In the second Example say, 8 from 5 I cannot, but 8 from 15 refts 7, then 1 I borrowed and 0 is 1, 1 from 0 I cannot, but 1 from 10 refts 9, then 1 I borrowed and 1 is 2, 2 from 0 I cannot, but 2 from 10 refts 8; lastly, 1 I borrowed and 4 is 5, 5 from 5 remains 0. Now, by this Means it appears, that there are 897 Dozen of Stockings remaining unsold or to dispose of.

Any Distance of Time, that is, from any particular Date of a Year, may be known by subtracting the Date from the present Date of the Year.

EXAMPLES.

Rome left off speaking Latin, A. C. 580, how long is it ago?	The Plague in Edinburgh, whereof died 11000, happen'd in the Year 1584, how long is it since?	King William III. died in the Year 1702, how long is it since?
From 1731 Subtract, 580	1731 1584	1731 1702
Since 1151	Since 147	Since 29

The first Example is 1151 Years, the second 147, and the third 29 Years ago.

Subtraction of divers Denominations.

Of Money.

Note, That having placed your Numbers right, the less under the greater, and Pounds under Pounds, Shillings under Shillings, &c. you must in case of want in the Farthings borrow 4, or one Penny, in the Pence borrow 12, or one Shilling, and in the Shillings borrow 20 Shillings, or one Pound, remembring always to pay what you borrowed to the next Place, by calling the lower Figure one more than it is.

EXAMPLES.

The Difference betwixt a Hebrew Talent of Gold valued at L. 4500, and that of a great Greek Talent at L. 233. 6. 8. is required. Again

Again, if one lent me a Guinea valued at *L. 1 1 s.* and I had paid a *Frankfort Florin*, at *4 s. 11 d. 2 q.* the Debt owing is required.

<i>L.</i>	<i>s.</i>	<i>d.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>	<i>qrs.</i>
4500	00	00	11	01	00	0
233	06	08	04	11	12	
4266	13	04	16	00	2	

In the first of these Examples, begin with the Pence, and say, 8 from 0 I cannot, but borrowing one Integer of the next Denomination, or 1 Shilling, which is 12 Pence, I say, 8 from 12, and there rests 4, wherefore I put down 4 in the Place of Pence, and say, 1 that I borrow and 6 is 7, 7 from 0 I cannot, but borrowing one Integer of the next Denomination, or one Pound, which is 20 Shillings, I say 7 from 20 and there rests 13, wherefore I put down 13 in the Place of Shillings, and say, 1 that I borrow and 3 is 4, 4 from 0 I cannot, but 4 from 10, (borrowing 10, as in Addition, I carry 1 for every 10) and there rests 6, then 1 that I borrow and 3 is 4, 4 from 0 I cannot, but 4 from 10 rests 6, then 1 that I borrow and 2 is 3, 3 from 5 rests 2. Now having borrowed none, I carry none to subtract out of the 4, but sets it down; so that the Value of the *Hebrew Talent* above that of the *Greek* is *L. 4266, 13 s. 4 d.* as in the Example.

In the second Example I say, 2 Farthings (or a Half-penny) from 0 I cannot, but 2 from 4 rests 2, which I set down under the Denomination of Farthings, then I go to the Pence, saying, 1 I borrowed and 11 is 12, 12 from 0 I cannot, but 12 from 12 rests 0, which I set down, then I go to the Shillings, and say, 1 I borrowed and 4 is 5, 5 from 1 I cannot, but 5 from 20, and there rests 15, and taking the over Number 1, and placing it to the Remainder 15, makes 16, wherefore I put down 16 in the Place of Shillings, and say, 1 that I borrow from 1 rests 0: So that the Difference betwixt a Guinea and a *Frankfort Florin*, will be *10 s. 0 d. 2 q.*

Troy Weight.

In case of Want in the Grains borrow 24, in the Penny Weight 20, in the Ounces 12, and in the Pounds as in Integers, remembering still to pay what you borrow to the next Place.

E X A M P L E.

Suppose a Gentleman sent to a	}	<i>Lib.</i>	<i>Oz.</i>	<i>P. W.</i>	<i>Gr.</i>
Gold-smith for this Weight of		15	05	12	14
Silver Plate.					
And that he would take only		08	07	14	17
How much must he send back?		06	09	17	21

Begin with the Grains, and say, 17 Grains from 14 Grains I cannot, but 17 from 24 refts 7, and 14 is 21, which set down; then proceeding to the Penny Weight, there you may work as in Shillings, and in the Ounces as in Pence, and in the Pounds as in Integers.

And so much for Substraction, which Method will serve for any Denomination whatever, having respect to the several Tables of Quantity as before hinted in Addition.

Proof of Substraction.

Add the Sum to be subtracted to the Remainder, the Total will be equal to the Number from which you were to subtract, if your Work be right.

EX.

EXAMPLES.

		L.	s.	d.
The Author here of was born in the Year of our LORD 1682, how old is he this present Year 1731?	Lent at one time a Pistole,	0	17	06
	at another an old Cardecue,	0	01	06 $\frac{1}{4}$
	at another a <i>Turkish</i> Zuz,	0	00	07 $\frac{3}{4}$
	at another a Cross Dollar,	0	04	02 $\frac{1}{4}$
From 1731	Lent in all, : : : : :	1	03	10
Subst. 1682				
Answer 49	Paid at one time, a Piece of Eight,	0	4	06
	at another a <i>Danish</i> Dollar,	0	3	11
	at another a common Dollar,	0	3	00
	at another a <i>Spanish</i> Ryal,	0	0	06 $\frac{3}{4}$
Proof 1731	Paid in all, : : : : :	0	11	11 $\frac{1}{4}$
	Refts to pay, : : : : :	0	11	10 $\frac{1}{4}$
	Proof, : : : : :	1	03	10

In this Example I add the Sums lent into one Sum, and likewise what was paid, then subtracting 11 s. 11 d. $\frac{1}{4}$ from L. 1 3 s. 10 d. the Remainder will be found to be 12 s. 11 d. $\frac{1}{4}$.

MULTIPLICATION.

IN Multiplication we are particularly to take Notice of these three Terms, *viz.*

1. The Multiplicand, or Number to be multiplied.
2. The Multiplier, or Number by which we multiply.

D 2

3. The

3. The Product, or Result of the Work, being the Answer.

And which of the Numbers is made the Multiplicand, or the Multiplier, it mattereth not, for the Product is the same, only 'tis more convenient, to make the lesser of the two Numbers the Multiplier.

But before any Procedure can be made in this Rule, 'tis necessary to have the following Table by Heart, and that very perfectly, thereby not only to work Multiplication rightly, but likewise Division, it being certain, that none can be a good Arithmetician who is unskill'd of it, and upon which depends the Art of accompting right.

The Multiplication TABLE.

1	2	3	4	5	6	7	8	9	12
2	4	6	8	10	12	14	16	18	24
3	6	9	12	15	18	21	24	27	36
4	8	12	16	20	24	28	32	36	48
5	10	15	20	25	30	35	40	45	60
6	12	18	24	30	36	42	48	54	72
7	14	21	28	35	42	49	56	63	84
8	16	24	32	40	48	56	64	72	96
9	18	27	36	45	54	63	72	81	108
12	24	36	48	60	72	84	96	108	144

To this Table we have added a Column of 12, for the speedy reducing Pence into Shillings, the reading whereof is easy, for suppose the Product of 12 by 7 were required, look for 12 upon the Top, and the other, to wit 7 in the Side, and in the Angle or Meeting is 84 the Product required; so 9 times 6 will be 54; look 9 in the Top, and 6 in the Side, and in the Angle of Meeting you will find 54, and so of any other. Multiplication is either single by one Figure, or compound that consists of many.

Single Multiplication is said to consist of one Figure, because the Multiplicand and Multiplier consist each of them of a Digit and no more,

more, as if it were required to multiply 9 by 8. Here 8 times 9 is 72, now 72 is the Product of this Multiplication, so that the greatest Product that can arise by single Multiplication, is 81, being the Square of 9; all the Variety of which is contained in the foregoing Table.

Compound Multiplication is when the Multiplier consists of two, three, four, or more Figures, or Figures and Cyphers.

How to multiply by any one Number from 10 to 20, so as to bring the whole Operation into one Line.

The Rule is,

Multiply only by 1, 2, 3, 4, 5, &c. and as you multiply, add the Figure of the Multiplicand which stands on the Right-hand.

EXAMPLES.

How many Shillings are in

4865 *Flanders Albertus's?*

13

63245

How many Two pences are in

3584 *Hamburg Dollars?*

19

68096

In this Example where the Multiplier is 19, *first* I say 9 Times 4 is 36, 6 and carry 3, 9 Times 8 is 72, and 3 is 75, and 4 (the back Figure to 8) is 79, 9 and carry 7, 9 Times 5 is 45, and 7 is 52, and 8 (the back Figure to 5) is 60, 0 and carry 6, 9 Times 3 is 27, and 6 is 33, and 5 (the back Figure to 3) is 38, 8 and carry 3, which 3 is again added to 3, the Left-hand Figure of the Multiplicand; so by this Means I find there are Sixty eight thousand and ninety six Two-pences in three thousand five hundred and eighty four *Hamburg Dollars*.

The whole Operation of the Multiplication of Numbers between 20 and 30, 30 and 40, 40 and 50, may be brought into one Line by taking in the double, treble and quadruple of the back Figure.

EX.

E X A M P L E S.

How many Shillings
are in 4623 Guineas?

$$\begin{array}{r} 21 \\ \hline 97083 \end{array}$$

How many Pence are in
3629 Zealand Dollars?

$$\begin{array}{r} 36 \\ \hline 130644 \end{array}$$

How many Farthings
are in 9653 Shillings?

$$\begin{array}{r} 48 \\ \hline 463344 \end{array}$$

In the first Example, I say once three is three, once 2 is 2, and the double of 3, the back Figure to 2, is 8, once 6 is 6, and the double of 2, the back Figure to 6, is 10, 0 and carry one, once 4 is 4, and 1 I carried is 5, and the double of 6, the back Figure to 4, is 17, 7 and carry 1, which 1 added to the double of 4, the Left-hand Figure of the Multiplicand is 9.

The like may be done betwixt 50 and 60, 60 and 70, 70 and 80, 80 and 90, 90 and 100, by taking in the Multiplication of the back Figure by 5, 6, 7, 8 and 9.

E X A M P L E S.

How many Pences are in
5948 Riga Dollars?

$$\begin{array}{r} 56 \\ \hline 333088 \end{array}$$

How many Pence are in
4925 Flanders Ducattoons.

$$\begin{array}{r} 75 \\ \hline 369375 \end{array}$$

How many Pence are in
5673 Barcelona Ducats?

$$\begin{array}{r} 64 \\ \hline 363072 \end{array}$$

How many Pence are in
4683 Norimberg Guilders?

$$\begin{array}{r} 85 \\ \hline 398055 \end{array}$$

How

How many Pence are in
7659 *Turkish Sultanines*?

96

735264

In this last Example, I say 6 Times 9 is 54, 4 and carry 5, 6 Times 5 is 30, and 5 I carried is 35, and the Multiplication of 9 the back Figure to 5 by 9, is 116, 6 and carry 11, 6 Times 6 is 36, and 11 I carried is 47, and the Multiplication of 5 the back Figure to 6 by 9, is 92, 2 and carry 9, 6 Times 7 is 42, and 9 I carried is 51, and the Multiplication of 6 the back Figure to 7 by 9, is 105, 5 and carry 10, which 10 added to the Multiplication of 7, the Left-hand Figure of the Multiplicand by 9 is 73.

How to multiply from 110 to 120.

Do as in multiplying from 10 to 20; only observe as you multiply to add those two Figures of your Multiplicand which stand to the Right-hand.

EXAMPLES.

How many Pence are in
8469 *Venetian Cuckeens*?

115

973935

How many half Pence are in
7682 *Saragossa Ducats*?

118

906476

In this Example where the Number of half Pence are required in 7682 *Saragossa Ducats*, I say 8 Times 2 is 16, 6 and carry 1, 8 Times 8 is 64, and 1 I carried is 65, and 2 on the right of 8 is 67, 7 and carry 6, 8 Times 6 is 48, and 6 I carried is 54, and 8 on the right of 6 is 62, and 2 again on the right of 8 is 64, 4 and

and carry 6, 8 Times 7 is 56, and 6 I carried is 62, and 6 on the right of 7 is 68, and 8 again on the right of 6 is 76, 6 and carry 7, which 7 added to 7 is 14, and that added again to 6, the Figure on the right of 7 is 20, 0 and carry 2, which 2 being again added to 7 the last Figure of the Multiplicand to the left, is 9.

The whole Operation of the Multiplication of Numbers

120	200
210	300
310	400
410	500
510	600
610	700
710	800
810	900
910	1000

may be easily performed by observing the Directions given upon the following

EXAMPLES.

How many Inches are in

357 Perches.

198

70686

How many Cloves of Wooll are
in 9573 Lasts?

624

5973552

Example First. I say 8 Times 7 is 56, 6 and carry 5, 8 Times 5 is 40, and 5 I carried is 45, and 7 the back Figure to 5, multiplied by 9, is 108, 8 and carry 10, 8 Times 3 is 24, and 10 I carried is 34, and 5 the back Figure to 3, multiplied by 9, is 79, and 7 the back Figure to 5, is 86, 6 and carry 8, which added to 3, multiplied by 9, is 35, and 5 the back Figure to 3, is 40, 0 and carry 4, this 4 being again added to 3, the Left-hand Figure of the Multiplicand is 7.

Example

Example II. I say 4 Times 3 is 12, 2 and carry 1, 4 Times 7 is 28, and 1 I carried is 29, and the double of 3, the back Figure to 7, is 35, 5 and carry 3, 4 Times 5 is 20, and 3 I carried is 23, and the double of 7 the back Figure to 5 is 37, and the Multiplication of 3, the back Figure to 7, by 6, is 55, 5 and carry 5, 4 Times 9 is 36, and 5 I carried is 41, and the double of 5 the back Figure to 9 is 51, and the Multiplication of 7 the back Figure to 5 by 6 is 93, 3 and carry 9, then multiplying 9 the Left-hand Figure of the Multiplicand by 2, the second Figure of the Multiplier, and taking in what I carried is 27, which added to the Multiplication of 5, the back Figure to 9, by 6, makes 57, 7 and carry 5, this 5 added to the Multiplication of 9 by 6, the Left-hand Figure of the Multiplier, is 59.

How to multiply from 100 to 110, or from 200 to 210.

To multiply by 101, 102, 103, &c. is no more than to multiply by 1, 2, 3, &c. And as you multiply add that Figure of your Multiplicand that standeth next the Right-hand except one; to multiply by 201, 202, 203, &c. is performed the same Way by taking in the double of that Figure next the Right-hand except one.

EXAMPLES.

I.
How many Pence are in
4865 Turkish Zechins?
108

525420

II.
How many Farthings are in
4899 Prince of Orange Dollars?
207

1014093

In the first Example, I say 8 Times 5 is 40, 0 and carry 4, 8 Times 6 is 48, and 4 I carried is 52, 2 and carry 5, 8 Times 8 is 64, and 5 I carried is 69, and the back Figure to 8 except one is 74, 4 and carry 7, 8 Times 4 is 32, and 7 I carried is 39, and 6 the back Figure to 4 is 45, 5 and carry 4, which 4 added to 8
E the

the back Figure to 4, is 12, 2 and carry 1, then adding this 1 to the 4, the Left-hand Figure of the Multiplicand, makes 5.

In the second Example, I say 7 Times 9 is 63, 3 and carry 6, 7 Times 9 is 63, and 6 I carried is 69, 9 and carry 6, 7 Times 8 is 56, and 6 I carried is 62, and the double of 9, the back Figure to 8 except one, is 80, 0 and carry 8, 7 Times 4 is 28, and 8 I carried is 36, and the double of 9, the back Figure to 4 except one, is 54, 4 and carry 5, which 5 added to the double of 8 upon the right of 4 is 21, 1 and carry 2, and this 2 added again to the double of 4, the Left-hand Figure of the Multiplicand, is 10.

To multiply from	$\left. \begin{array}{l} 300 \\ 400 \\ 500 \\ 600 \\ 700 \\ 800 \\ 900 \end{array} \right\}$	to	$\left\{ \begin{array}{l} 310 \\ 410 \\ 510 \\ 610 \\ 710 \\ 810 \\ 910 \end{array} \right.$	is the same as in multiplying
				from 200 to 210; only observe
				to take in the Multiplication of
				the next Figure to the Right-
				hand, except one, by 2, 3, 4, 5, 6,
				7, 8, 9, according as the Question
				stated requires.

How to multiply from 1000 to 1010, &c.

To multiply by 1001, 1002, 1003, 1004, &c. is no more than to multiply by 1, 2, 3, 4, &c. And as you multiply add that Figure of your Multiplicand that standeth next the Right-hand except two.

EXAMPLES.

How many Pints of *Rhenish Wine* are in 9685 Pipes?

1008
9762480

How many Shillings at 300 l. 9 sh. the Piece will 6899 Diamonds cost?

6009
41456091

In the last Example, I say, 9 times 9 is 81, 1 and carry 8, 9 times 9 is 81, and 8 I carried is 89, 9 and carry 8, 9 times 8 is 72, and 8 I carried is 80, 0 and carry 8, 9 times 6 is 54, and 8 I carried is 62, and the Multiplication of 9 by 6, the back Figure to 6, except two, is 116, 6 and carry 11; then the Multiplication of 9 by 6, the back Figure to 6, except one, is 65, 5 and carry 6, then the Multiplication of 8 by 6, the back Figure to 6, is 54, 4 and carry 5, and lastly, the Multiplication of 6, the Left-hand Figure of the Multiplicand by 6, is 36, and 5 that I carried is 41.

If you have Cyphers both in the Multiplicand and Multiplier, then neglect the Cyphers in both, and multiply by the Figures, and annex the Cyphers at last.

As in these Examples.

$\begin{array}{r} 23400 \\ 220 \\ \hline 5148000 \end{array}$	$\begin{array}{r} 56700 \\ 12000 \\ \hline 680400000 \end{array}$	$\begin{array}{r} 891200 \\ 2400 \\ \hline 2138880000 \end{array}$
---	---	--

Therefore any Number may be multiplied by 10, 100, 1000, &c. only by placing on the Right-hand of it, one, two, three, or more Cyphers. Thus 234 multiplied by 10 is 2340, by 100 is 23400 and by 1000 it produces 234000.

To multiply any Number by 1728 or 3072, &c. may easily be performed, in multiplying first by 28 in one Line, and 17 in another, likewise by 72 in one Line, and 3 in another, observing always to place the first Figure of a Line under its own Multiplier.

E X A M P L E S.

I.

$$\begin{array}{r} 41265 \\ 1728 \\ \hline 1155420 \\ 701505 \\ \hline 71305920 \end{array}$$

II.

$$\begin{array}{r} 4637 \\ 3072 \\ \hline 333864 \\ 13911 \\ \hline 14244864 \end{array}$$

E 2

The

The first Question is the same, as if one had demanded in 41265 great Grofs, how many Tobacco-pipes; and the second Example shews, how many Pints of Salt are in 4637 Weys.

Multiplication of Money.

Multiplication of Money (which most would learn above any Thing) hath great Affinity with Addition of Money, the same Regard being had in carrying from one Denomination to the next; viz. from Farthings to Pence, from Pence to Shillings, and from Shillings to Pounds. And as, in Addition (and other Multiplications) you begin at the Right-hand and proceed towards the Left, so here you begin at the least Denomination, which is also at the Right-hand.

This Method of accounting is the most apt and expeditious of all other for small Quantities, and therefore extremely necessary in making Bills of Parcels, &c. and is beyond all Contradiction as sure and certain as any Way whatsoever.

The General Rule.

Is always to multiply the Price by the Quantity.

The first Step is for Quantities from 2 to 12; and this is done by one Multiplication, as in the following Examples.

I.

What come 9 Gallons of sweet Oil of Genoa to, at 15 s. 9 $\frac{3}{4}$ d. per Gallon?

$$\begin{array}{r}
 \text{£} \quad 15 \quad 9 \quad 3 \\
 \quad \quad \quad 9 \\
 \hline
 \text{£} \quad 7 \quad 02 \quad 3 \quad 3
 \end{array}$$

II.

How much will 12 Barrels of Figs cost, at £. 3 14 07 $\frac{1}{4}$ per Barrel?

$$\begin{array}{r}
 \text{£} \quad 3 \quad 14 \quad 07 \quad 11 \\
 \quad \quad \quad 12 \\
 \hline
 \text{£} \quad 44 \quad 15 \quad 03 \quad 00
 \end{array}$$

In:

In this first Example, I say 9 Times 3 is 27 Farthings, so considering how often-times 4 is contained in 27, I find 6 Times and 3 over, therefore I set down 3 in the Place of Farthings, and carry 6 to Pence the Place of Pence, then 9 Times 9 is 81 and 6 is 87, here I consider how often-times 12 is contained in 87, which is 7 Times and 3 over, this 3 I set down under the Place of Pence, and carry 7 Shillings to the Place of Shillings, then 9 Times 5 is 45, and 7 is 52, I set down 2 and carry 5, then 9 Times 1 is 9, and 5 is 14, which being the Tens of Shillings, consequently they are Angels, which being halv'd make 7 L. So the whole Amount of the 9 Gallons of Oil at 15 lb. 9 d. $\frac{1}{4}$ per Gallon, is 7 l. 2 lb. 3 d. $\frac{3}{4}$. as in the Work, and very concise.

The second Example needs no verbal Directions ; only remember when your Tens of Shillings or Angels are odd, you must set down 1 Angel, or one Time Ten Shillings under the Place of Tens of Shillings or Angels.

The next Degree or Step of Advance in this Way of Reckoning is, How to multiply by the Parts instead of the whole, and that you may proceed with Dexterity, you must be very ready in the Table of Multiplication, that you may be immediately apprehensive what component Parts hit your Quantity proposed.

Again, When the Quantity proposed is a Number irregular, or such a Number that no two Numbers in the Table can be found to answer it, then we must multiply by two such Numbers as come pretty near it, and for the Number wanting to make up the Number or Quantity proposed, multiply the given Price of one by the Number that is wanting, which will make three Products by three Multiplications, which last Product must be added to the foregoing Products, resulting from two Multiplications, and the Total will be the Answer.

Ex-

*Examples of Regular Quantities.***I.**

What comes 24 Pound Weight of Raisins to, at 5 d. $\frac{3}{4}$ per Pound ?

$$\begin{array}{r}
 6 \\
 \hline
 290 \\
 4 \\
 \hline
 \text{£. } 11 \quad 0 \quad 0
 \end{array}$$

II.

How much will 54 Gold Watches cost, at L. 24 13 09 3 per Watch ?

$$\begin{array}{r}
 9 \\
 \hline
 222 \quad 04 \quad 03 \quad 3 \\
 6 \\
 \hline
 \text{L. } 1333 \quad 05 \quad 10 \quad 2
 \end{array}$$

In this first Example, I say 6 Half-pence, or 6 Times two Farthings, is 3 Pence, 0 and carry 3, then 6 Times 5 Pence is 30, and 3 is 33; now considering how often 12 is contained in 33, I find it twice, and 9 over, so that 33 Pence is $\text{£. } 2 \quad 9 \quad 0$ for the first Product, this I multiply again by 4, saying 4 Times 0 is 0, then 4 Times 9 is 36 Pence, 0 and carry 3, then 4 Times 2 is 8, and 3 I carried is 11 Shillings, the Value of the whole Raisins.

In the second Example, I say 9 Times 3 is 27 Farthings, or 6 d. 3 Farthings, I set down 3 and carry 6, then 9 Times 9 is 81, and 6 is 87 Pence, or 7 $\text{£. } 3 \text{ d. } 1$ set down 3 and carry 7, then 9 Times 3 is 27, and 7 is 34, 4 and carry 3, then 9 Times 1 is 9, and 3 is 12, whose Half, viz. 6 Pounds, must be joined to the Pounds, saying 9 Times 4 is 36, and 6 is 42, 2 and carry 4, 9 Times 2 is 18, and 4 is 22; so the first Product is 222 l. 04 $\text{£. } 03 \text{ d. } 3 \text{ qrs.}$ which I multiply by 6, and that produces the last Product or Answer, viz. L. 1333 05 10 2.

By this we see that in all Examples under this Head, we are to pitch on two Numbers (for Multipliers) in the Table, which multiply'd together make the Quantity propos'd, as 24 Pounds in the first Example, and 54 Watches in the second; I readily know that 6 and 4, or 4 and 6, also 9 and 6, or 6 and 9, are to be my Multipliers, and exactly hit their several Quantities, of which they are component Parts, and Examples of this Kind have two Multiplications for their Solution.

Ex

Examples of Irregular Quantities.

What come 26 Barrels of Gun-powder to, at $L. 3 \ 5 \ 6$ per Bar. How much will 38. Lafts of Feathers cost, at $L. 4 \ 12 \ 4$ per Laft?

$$\begin{array}{r} L. \quad 3 \quad 5 \quad 6 \\ \hline 16 \quad 7 \quad 6 \\ \hline 81 \quad 17 \quad 6 \\ 3 \quad 5 \quad 6 \\ \hline L. \quad 85 \quad 3 \quad 0 \end{array}$$

$$\begin{array}{r} L. \quad 4 \quad 12 \quad 4 \quad 2 \\ \hline 41 \quad 11 \quad 4 \quad 2 \\ \hline 166 \quad 05 \quad 6 \quad 0 \\ 9 \quad 04 \quad 9 \quad 0 \\ \hline L. \quad 175 \quad 10 \quad 3 \quad 0 \end{array}$$

In Numbers that are not to be answered precisely at two Multiplications, you will have an Addition of one Line more, occasioned by bringing down the Price of one to be added to the last Product, or else a Line more made by multiplying the Price by what is defective or wanting in the Number by two Multiplications, to make up the proposed Quantity complete, as it may be of 2, 3, 4, 5, &c. as by the foregoing Examples may be seen and understood.

In the last Example, I find that 9 multiply'd by 4 makes 36, which is within 2 of the Quantity propos'd, wherefore I multiply by 9, and that Product again by the other 4, the last Product is *L.* 166 5 6, which is the Value of 36; but we want to know the Value of 38, wherefore I multiply the Price of one, *viz.* 4 *l.* 12 *sh.* 4 *d.* 2 *qrs.* by 2, that is defective or wanting to make up 36 to 38, saying 2 Times 2 is 4 Farthings, 0 and carry 1 Penny, then 2 Times 4 is 8, and 1 is 9 Pence, &c. and find that 2 Times *L.* 166 5 6 is *L.* 9 04 09, which added to *L.* 166 05 06, the Total gives the complete Value of 38, for 36 and 2 make 38.

B. All Examples, whether of Regular or Irregular Quantities that are or are not to be answered precisely at two Multiplications, may

may be work'd by the Rules of Practice more easily, and with less Figures and Time, which, for a Proof of the Truth thereof, I shall give you the same four foregoing Examples again in Practice when we come to it.

To prove Multiplication.

There are several Ways to prove Multiplication, but the only Proof is by Division, of which afterwards.

Another Way is by casting away the Nines both in the Multiplicand, Multiplier and Product, but this Way may prove false, for if thro' Mistake you should make 9 of a Cypher, or 0 of a 9 in the following Product, the Work would prove, tho' erroneous. Nevertheless, if it prove not true this Way, the Sum cannot be right.

A third Way, and that which we shall use at present is by making Multiplication to prove itself, thus: Make that which was your Multiplicand your Multiplier, then multiplying as usual, if your Product be the same, your Work is right, else not.

E X A M P L E.

If a Purse of 325 Guineas, each valued at 1 l. 1 s. be given in Exchange for so many Silver Two Pences of equal Value, what Number of Two Pences will purchase the said Purse of Gold?

$\begin{array}{r} 325 \\ 126 \\ \hline 40950 \end{array}$	$\begin{array}{r} 126 \\ 325 \\ \hline 40950 \end{array}$
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Here I multiply the 325 Guineas by 126, the Number of Two Pences of equal Value to a Guinea at 21 Shillings, and the Product 40950 Two Pences is the Answer, and the same both Ways, which is the Proof of the Work.

***** D I V I S I O N . *****

THIS Rule, tho' accounted the hardest Lesson in Arithmetick, yet I shall make it easy and intelligible to the meanest Capacity.

In this Rule, (whose Use is to know how many times one Number or Sum is contained in another) we are to take particular Notice of these three certain Terms following, *viz.*

1. The *Dividend*, or Number to be divided.
2. The *Divisor*, or Number by which we divide.
3. The *Quotient*, or Answer to the Work.
4. The *Remainder*, which is an uncertain Branch of this Rule, because there is sometimes a *Remainder*, and sometimes not.

One thing strictly to be observed in Division is, that you cannot get the Divisor out of the Dividend above nine times, whatever under, because, of all the Elements of Numbers, 9, which is the Root of 81, is the greatest Quotient that can arise in single Division, neither can the Remainder be more or equal to the Divisor, otherwise your Division is not rightly performed.

As Multiplication is a compendious Performance of Addition, so Division is a curious Abbreviation of Subtraction, for whatever is augmented by the former, the same is diminished by the latter.

For, suppose it were required to know the Sum of four Eights by Addition, or to divide 32 by 8, that is to find how often 8 is contained in 32, by Subtraction the Work will stand thus.

Here we see, that the first is too tedious a Method for Practice, being discoverable at once by the Table of Multiplication to be 28.

And by the second we find, that 8 is 4 times contained in the Number 32, but it may be discovered by the Rules of Division at one Trial.

<i>First</i>	<i>Second.</i>
8	32
8	8
8	—
8	24
—	8
—	—
32	16
	8
	—
	8
	—
	8
	—
	0

Division by one Figure.

How to divide by any of the 9 Digits, without setting down any Figures but the Quotient itself.

To divide by 2, is but to halve the Number, setting down the Figures of the Quotient, orderly under the Dividend.

To divide by 3, is to take $\frac{1}{3}$ of the Number given.

To divide by 4, &c. is to take $\frac{1}{4}$ of the Number given, and when there's any Remainder, place it at some Distance upon the Right-hand of the Quotient, as in the following

EXAMPLES.

How many Fathoms are in 2 - 3275 Yards?	How many Angels are in 3 - 4235 half Nobles?	How many Pounds are in 4 - 6279 Crowns?
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1637 - 1

1411 - 2

1544 - 3

How many Ells are in 5 - 4698 Spans?	How many Fathoms are in 6 - 8754 Feet?	How many Weeks are in 7 - 4273 Days?
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939 - 3

1459

610 - 3

How many Pounds are in
8 - 7564 Half Crowns?

945 - 4

How many Spans are in
9 - 4339 Inches?

482 - 1

In the first Example of 3 is 1, and 1 remaining, join'd to 2 makes 12, $\frac{1}{3}$ of 12 is 6, of 7 is 3, $\frac{1}{3}$ of 15 is 7, and 1 Yard remains, which set down as above.

In the Example, where the Divisor is 9, I say the 9's in 43, 4 times, and there remains 7, which makes 3, the next Figure in the Dividend, 73, then the 9's in 73, 8 times, 8 times 9 is 72, from 73 and there remains 1, which makes 9, the next Figure of the Dividend, 19. Lastly, the 9's in 19, 2 times, and 2 times 9 is 18, 18 from 19, and there rests 1 the Remainder.

D.

Division by two Figures.

When any Quantity is such a Number, that any two Digits of the Multiplication Table, multiplied together, make the said Quantity or Number, then the Quotient may be very expeditiously found at two Divisions, and sooner than at one.

EXAMPLES.

I. How many Terces of Cyder are in $\begin{array}{r} 42 \overline{) 78904} \\ \underline{6 1272} \\ 212 \end{array}$ Gallons?	II. How many Bolls of Wheat are in $\begin{array}{r} 64 \overline{) 82820} \\ \underline{8 352} \\ 44-4 \end{array}$ Forpets?
III. How many Punchias of Wine are in $\begin{array}{r} 84 \overline{) 122076} \\ \underline{7 173} \\ 24-60 \end{array}$ Gallons?	IV. How many Pound Weight of Tartar are in $\begin{array}{r} 96 \overline{) 122175} \\ \underline{8 181} \\ 22-63 \end{array}$ Drams?

In these four Examples, the Digits, component Parts or Ratio's, which multiply'd together make the Divisors 42, 64, 84 and 96 (the Number of Gallons, Forpets, Gallons and Drams, contained in a Terce, Boll, Puncheon, and Pound Weight found in the Tables of Wine Measure, dry Measure used in *Scotland*, and Apothecaries Weight) are 7 and 6, 8 and 8, 12 and 7, 12 and 8, or 6 and 7, 8 and 8, 7 and 12, 8 and 12, for it matters not which of the Ratio's you divide by first, for either of which Divisions give a true, and the same Quotient, and Remainder, as if you divided by the long Way.

*How to find out the Remainder when your Divisor is two Figures.**The Rule.*

Multiply your first Divisor by your last Remainder, to which add your first Remainder, if there be any.

If there's no Remainder left, either when the first or last Division is finished, then you may expect nothing to remain, as in Example I.

If any be left in the first Division, and nothing remain in the last, then that Number so left, is the Remainder, as in Example II. where 4 remains.

If any be left in the last Division, and nothing remain in the first, then you are to multiply your first Divisor by that Number so left, and the Product will make the Remainder, as in Example III. where 5 remains in the last Division, by which I multiply my first Divisor 12, and it gives 60.

But when some are left in both Divisions, as in Example IV. I multiply my first Divisor 12 by 5 that remained in my last Division, which is 60, to which having added 3 that remained in my first Division, it produces 63 for a Remainder.

And thus may several other Examples be wrought by Numbers out of the Multiplication Table, with great Dispatch and Expedition, as by 12, 14, 15, 16, 18, 21, 24, 25, 27, 28, 32, 35, 36, 45, 48, 54, 56, 63, 72, and as they stand ranked, will turn Inches into Feet, Pound Weights of Wooll into Stones, Palms into Ells, Drams into Ounces, Inches into Cubits, Shillings into Guineas, Grains into Penny Weights, square Feet into square Paces, Barley Corns into Spans, Pound Weights of Wooll into Todds, Pecks of Corn into Quarters, Gallons of Beer into Barrels, Inches into Ells, Farthings into Shillings, Barley Corns into Cubits, Pence into Riga Dollars, Gallons into Hogsheads, and Inches into Fathoms, as may be seen by the several Tables in Addition, &c.

Divi

Division by three Figures.

How many C. Wt. of Rosin are in

8 - 42537 lb ?

112 } 7 - 5317

2 - 759

379 - 89

How many Furlongs are in

132 } 12 - 28468 - Paces ?

11 - 2372

215 - 88

How to find out the Subdivisors or component Parts of the grand Divisor.

In the Example where the grand Divisor is 112, I take the half of it, which is 56, then $\frac{1}{2}$ of 56 is 28, $\frac{1}{2}$ of 28 is 14, and $\frac{1}{2}$ of 14 is 7; so having divided 112 4 Times by 2, I multiply 2 into it-
 self, which is 4, and then that Product again by 2 is 8,
 which I set down (after having cancelled those Two's)
 for one component Part, then 2 remains for the 2d com-
 ponent Part, and 7, since it cannot be brought lower, is
 the 3d, and which of the component Parts to begin your
 Division with, you may use your Freedom, for it turns
 all to the same Effect at last. But I begin with the highest first.
 See the Margin.

$$\begin{array}{r} 2: 112 \\ 8: 56 \\ 2: 28 \\ 2: 14 \\ 7 \end{array}$$
Or,

The component Parts might have been found out sooner, thus;
 for having taken one half of 112, there remains 56, and
 since 8 Times 7 makes 56, there's no Occasion to con-
 tinue halving it any longer: So by this Direction you
 may find out the component Parts of any grand Divisor
 whatever.

$$\begin{array}{r} 2: 112 \\ 8: 56 \\ 7 \end{array}$$
How

How to find out the Remainder.

In the first Division 1 remains, in the second 4, and in the last 1; so passing by 2, my last Divisor, I multiply my 2d Divisor 7 by my last Remainder 1, which is still 7, adding thereto my 2d Remainder 4, which is 11, then multiplying my first Divisor 8 by 11, makes 88, to which I add my first Remainder 1, and the whole is 89.

Note, In all the following Examples, where the Divisor is three Figures, if any remain in the first Division, and none in the two last, then such Figure or Figures remaining is the Remainder.

If any remain in the first and second Division, and none in the last, then multiply your first Divisor by the 2d Remainder, and add your first Remainder to it.

If none remain in the first, but in the two last, then multiply your 2d Divisor by the last Remainder, and take in your 2d Remainder, by which Product multiply your first Divisor.

If none remain in either first or second, but in the last, then multiply your 2d Divisor by the last Remainder, and that Product again by the first Divisor.

If none remain in the first and last, but in the 2d, then multiply your first Divisor by such Remainder.

How many Butts of Usquebaugh are in

9 - 42753 Gallons?

$$\begin{array}{r} 126 \overline{) 9 - 42753} \\ \underline{7 - 4750} \\ 2 - 678 \\ \underline{ 339 - 39} \end{array}$$

339 - 39

How many Hogheads of Ale are in

8 - 12714 Pottles?

$$\begin{array}{r} 128 \overline{) 8 - 12714} \\ \underline{8 - 1589} \\ 2 - 198 \\ \underline{ 99 - 42} \end{array}$$

99 - 42

How many Ells are in

9 - 47075 Barley Corns?

$$\begin{array}{r} 135 \overline{) 9 - 47075} \\ \underline{5 - 5230} \\ 3 - 1046 \\ \underline{ 348 - 95} \end{array}$$

348 - 95

How many great Gros of Silk Buttons are in

12 - 40414 Dozens?

$$\begin{array}{r} 144 \overline{) 12 - 40414} \\ \underline{12 - 3376} \\ 281 - 50 \end{array}$$

281 - 50

How

(47)

How many Weeks are in

12 - 29731 Hours?

168 } 7 - 2477

2 - 353

176 - 163

How many Furlongs are in

11 - 53196 Ells?

176 } 8 - 4836

2 - 604

302 - 44

How many *Turkish* Sultanines are in

12 - 81523 Halfpence?

192 } 8 - 6793

2 - 849

424 - 116

How many Perches are in

11 - 30340 Inches?

198 } 9 - 2758

2 - 306

153 - 46

How many Fathoms are in

12 - 64260 Barley Corns?

216 } 9 - 5355

2 - 595

297 - 108

How many Stones of Wax are in

8 - 50050 Oz?

224 } 7 - 6256

4 - 893

223 - 98

How many Pieces of Ribbons, each at 4s. 9d. $\frac{3}{4}$ may be bought for

11 - 19635 Farthings?

231 } 7 - 1694

3 - 242

80 - 155

How many Tuns of Rum are in

12 - 41234 Gallons?

252 } 7 - 3436

3 - 490

163 - 158

How

How many Chalders of Oats
are in

$$\begin{array}{r} 8 - 22427 \text{ Pecks?} \\ 256 \left\{ \begin{array}{l} 8 - 2803 \\ 4 - 350 \end{array} \right. \end{array}$$

$$87 - 155$$

How many Hogheads of Beer
are in

$$\begin{array}{r} 12 - 36734 \text{ Quarts?} \\ 288 \left\{ \begin{array}{l} 12 - 3061 \\ 2 - 255 \end{array} \right. \end{array}$$

$$127 - 158$$

How many Lafts of Wooll
are in

$$\begin{array}{r} 13 - 64763 \text{ Stones?} \\ 312 \left\{ \begin{array}{l} 8 - 4981 \\ 3 - 622 \end{array} \right. \end{array}$$

$$207 - 179$$

How many Terces of Canary
are in

$$\begin{array}{r} 12 - 50321 \text{ Pints?} \\ 336 \left\{ \begin{array}{l} 7 - 4193 \\ 4 - 599 \end{array} \right. \end{array}$$

$$149 - 257$$

How many Sacks of Wooll
are in

$$\begin{array}{r} 13 - 20123 \text{ lb?} \\ 364 \left\{ \begin{array}{l} 7 - 1547 \\ 4 - 221 \end{array} \right. \end{array}$$

$$55 - 233$$

How many Weys of Sea-coal
are in

$$\begin{array}{r} 12 - 27468 \text{ Gallons?} \\ 384 \left\{ \begin{array}{l} 8 - 2289 \\ 4 - 286 \end{array} \right. \end{array}$$

$$71 - 204$$

How many Hats, each at
8 $\text{lb. } 0 \frac{1}{4}$ may be bought for

$$\begin{array}{r} 11 - 47299 \text{ Farthings?} \\ 385 \left\{ \begin{array}{l} 7 - 4299 \\ 5 - 614 \end{array} \right. \end{array}$$

$$122 - 329$$

How many Quarters of Tar
are in

$$\begin{array}{r} 8 - 26293 \text{ Oz?} \\ 448 \left\{ \begin{array}{l} 8 - 3286 \\ 7 - 410 \end{array} \right. \end{array}$$

$$58 - 309$$

How

How many Hogheads of Bran-
dy are in

9 - 487657 Pints?

$$\begin{array}{r} 504 \} 8 - 54184 \\ \} 7 - 6773 \\ \hline \end{array}$$

967-289

How many Quarters of Corn are in

8 - 27374 Pints?

$$\begin{array}{r} 512 \} 8 - 3421 \\ \} 8 - 427 \\ \hline \end{array}$$

53-238

How many Hogheads of Beer are in

12 - 22334 Pints?

$$\begin{array}{r} 576 \} 12 - 1861 \\ \} 4 - 155 \\ \hline \end{array}$$

38-446

Division by four Figures.

How many square Yards are in

12 - 526743 Sq. Inches?

$$\begin{array}{r} 1296 \} 12 - 43895 \\ \} 9 - 3659 \\ \hline \end{array}$$

406-327

How many Perches are in

11 - 64263 Barley Corns?

$$\begin{array}{r} 594 \} 9 - 5842 \\ \} 6 - 649 \\ \hline \end{array}$$

108-111

How many Lasts of Wooll

13 - 29374 Cloves?

$$\begin{array}{r} 624 \} 12 - 2259 \\ \} 4 - 188 \\ \hline \end{array}$$

47-124

How many Puncheons of

Wine are in

12 - 44444 Pints?

$$\begin{array}{r} 672 \} 8 - 3703 \\ \} 7 - 462 \\ \hline \end{array}$$

66-92

How many great Grofs are

in

12 - 920370 Tobac. Pipes?

$$\begin{array}{r} 1728 \} 12 - 76697 \\ \} 12 - 6391 \\ \hline \end{array}$$

532-1074

How

How many C. Wt. of Butter
are in

$$\begin{array}{r} 8 - 173462 \text{ Oz?} \\ \hline 8 - 21682 \\ \hline 1792 \} 7 - 2710 \\ \hline 4 - 386 \\ \hline 96 - 1046 \end{array}$$

How many Weys of Salt are
in

$$\begin{array}{r} 8 - 27483.5 \text{ Pints?} \\ \hline 256.0 \} 8 - 3435 \\ \hline 4 - 429 \\ \hline 107 - 915 \end{array}$$

How many Stones of Copper
are in

$$\begin{array}{r} 8 - 280078 \text{ Drams?} \\ \hline 8 - 35009 \\ \hline 3584 \} 8 - 4376 \\ \hline 7 - 547 \\ \hline 78 - 526 \end{array}$$

How many Quarters of Sope
are in

$$\begin{array}{r} 8 - 456789 \text{ Drams?} \\ \hline 8 - 57098 \\ \hline 7168 \} 8 - 7137 \\ \hline 7 - 892 \\ \hline 2 - 127 \\ \hline 63 - 5205 \end{array}$$

Division by five Figures.

How many C. Wt. of Flax
are in

$$\begin{array}{r} 8 - 2882227 \text{ Drams?} \\ \hline 8 - 360278 \\ \hline 28672 \} 8 - 45034 \\ \hline 8 - 1083629 \\ \hline 7 - 703 \\ \hline 100 - 15027 \end{array}$$

How many square Poles
are in

$$\begin{array}{r} 12 - 8100018 \text{ Sq. Inches?} \\ \hline 11 - 675001 \\ \hline 39204 \} 11 - 61363 \\ \hline 9 - 5578 \\ \hline 3 - 619 \\ \hline 206 - 23994 \\ \hline \text{When.} \end{array}$$

(51)
Whenever you divide by 10, 100, 1000, or 10000, &c. you have nothing more to do than to cut off, or to separate so many Figures or Cyphers of the Dividend towards the Right-hand, as you have Cyphers in the Divisor, and those Figures towards the Left make your Quotient, and those you cut off towards the Right is the Remainder.

EXAMPLES.

I.
How many Crowns are in
 $1.0:349.2$ Sixpences?

II.
How many Bundles of Beads are in
 $1.00:34.92$ Necklaces?

III.
How many Lasts are in
 $1.000:3.492$ Stock-Fish?

IV.
How many Lasts are in
 $1.0000:12.3456$ Herrings?

In the first Example, the Quotient is 349 Crowns, and the Remainder 2 Sixpences. In the second Example, the Quotient is 34 Bundles of Beads, and 92 Necklaces remaining. In the third Example, the Quotient is 3 Lasts, and 492 Stock-Fish remaining. In the fourth Example, there are 12 Lasts, and 3456 Herrings remaining. Also, if you would divide expeditiously by these Numbers, viz. 110, 120, 1100, or 1200, &c. 'tis but cutting off or separating the Cyphers from 11 and 12, (when these Numbers happen to be Divisors) and cutting off or separating the like Number of Figures or Cyphers from the Right-hand of the Dividend, and then divide the other Figures or Cyphers towards the Left-hand by 11 or 12, as it shall happen, as in the Examples following.

How many Furlongs are in
 $11.0:472.0$ Fathoms?

Quotient $42 \frac{10}{11}$ or $\frac{462}{11}$

How many Crowns are in
 $12.0:347.5$ Half-pences?

Quotient $28 \frac{11}{12}$ or $\frac{347}{12}$

In the first of these Examples, I say the 11's in 47, 4 Times, 4 Times 11 is 44, from 47, and there rests 3, &c.

But before I proceed further, I shall give you
A Hint of Generals, or Things proper to be known and remem-
bred on proper Occasions,

viz.

Things sold and bought at Fivescore to the Hundred.

Annotto, Capers, Safflower, Laths of 5 Foot-long, Skins, Thrums,
Ginger, Cloves, Indigo, Cross Bow Thread, Pack Thread, Kids or
Goats Hair, Quick Silver, Cotton Wooll, English hard Wax, Staves,
Brass and Latten Work, as Chaffing-dishes, Andirons, Laver-cocks, &c.

Goods sold by Sixscore to the Hundred.

Bauks and Barlings, Barrel and Pipe Boards, Bomspars and Bow-
staves, Cantspars and Caprevans, Lamb Skins, Herrings, Deal-
Boards, Nails, Eggs, Cod-fish, Cole, Ling, and New-land Fish,
Stock-fish of all Sorts, Ells of Canvas, and most foreign Linens,
and Hogshead Staves.

Things in wholesale Trade bought and sold by the Thousand.

Cuttle Bones, Oranges and Limons, Paste-boards for Books,
Tennis-balls, Chair Nails, Tacks and Tenter Hooks, Pomegranates
and Tazels, Goose Quills and Thimbles, Bricks, Clinkers, (or *Flan-
ders* Tiles) Billets, and Leaves of Horn, Barrel Hoops, Squirrel
Skins, Ox Bows, Yards of Lint, Slate and Hilling Stones, Pins and
small Needles by the 1000 Dozen.

Barrels of sundry Commodities.

Anchovies 30 lb.
Double Barrel 60 lb.
Nuts or Apples 3 Bushels.
Pot-ash or Barilla 200 lb.
White or black Plates 300.
Candles 10 Dozen lb.
Salmon or Eels 42 Gallons.
Figs 3 qrs. 14 lb. to 2 C $\frac{1}{2}$.

Raisins 1 C. Wt.
Oyl 31 Gallons and half.
Spanish Tobacco 2 C. to 3 C.
Gun-powder 1 C. Wt.
Sope 240 lb.
Butter 224 lb.
Herrings 32 Gallons.

A Chest of } Sugar from 10 to 15 C.Wt.
 } Glafs from 200 to 300 Foot.
 } Indigo from ½ C to 2 C.Wt.
 } Cotton Yarn from 3 to 4 C.Wt.
A Bale of } Raw Silk from 1 to 4 C.Wt.
 } Locrum or Dowlas 3, 3½
 } or 4 Pieces.

A Seron of } Almonds 2 C. Wt.
 } Anife-seeds from 3 to 4 C.Wt.
 } Castile Sope: ½ to 3½ C.Wt.
 } Rings for Keys 2 Gross.
A Box of } Prunellas 14 lb.
 } Quick Silver 1 to 2 C.Wt.

A Bundle of } Baste Ropes,
 } Harness Plates, } 10
 } Glovers Knives,
 } Hamburgh Yarn 20 Skeans.
 } Basket Rods 3 Foot about the Band.

A Wey of } Cheefe or Wooll is 256 lb. *Avoir du pois.*
 } Corn, Barley, or Malt, 6 Quarters or 48 Bushels.
 } Glafs 6 Bunches.

Butter
Cod Fish
White Herrings
Meal
Sope
Aines for Sope
Corn or Rapeseed 10 Quarters.

A Last of } Gun-powder 24 Barrels, or 2400 lb. Weight.
 } Red Herrings 20 Cades.
 } Hides 12 Dozen.
 } Leather 20 Dickers.
 } Pitch or Tar 14 Barrels.
 } Wooll 12 Sacks.
 } Stock Fish 100.
 } Flax or Feathers 1700 lb. Wt.

Almonds 3 C. Wt.
Anife-seeds from 3 to 4 C. Wt.
A Bag of } Pepper from 1½ to 3 C.Wt.
 } Goats Hair from 2 to 4 C.Wt.
 } Cotton Yarn from 2½ to 4½ C.Wt.

Ale, Sope or Her-
rings, 8 Gallons.
A Firkin of } Beer, 9 Gallons.
 } Salmon or Eels 10½ Gal.
A Cade of } Red Herrings 500.
 } Sprats 1000.

each 12 Ale Barrels.

Leather is 10 Hides or Skins.

A Dicker of Gloves or Horse Shoes 10 Pair.

Necklaces 10 Bundles or 100 Necklaces.

Fustian 14 Ells.

A Chief of { Fine Linen }
 { Silk } 10 Ells.
 { Sinden }

An Hund. of { Ling }
 { Haberdine } is 124
 { God Fish }

A Thousand is 1240.

A Bind of Eels is 10 Strikes, 25
Eels to a Strike.

A Hund. of { Herrings }
 { Stock Fish } is 120

A Thousand is 1200.

Furs as { Sables }
 { Filches }
 { Minks } 40 Skins is a Timber.
 { Martins }
 { Greys }
 { Jennets }

A Kip of Goat Skins is 50.

Other Skins fivescore to the Hun-
dred.

70 Pipe }
90 Hhd. } Hoops is a Bundle.

A Hund. of { Barrel or Kil- }
 { derkin Hoops } is 120
 { Deals }
 { Nails }
 { Pink or Firkin Hoops is 180.

A Seam of { Glas is 24 Stone or 120 lb }
 { Wood is an Horse Load.

A Table of Newcastle Glas cut in-
to Diamond Fashion is 5 Foot

NEWCASTLE Glas is 4 Tables.

A Case of { Normandy Glas cut into }
 { long Squares for Sash }
 { Windows is 25 Tables.

A Dozen of Glas Bottles is 21.

A Gros is 12 such Dozens or 252,
which is a Day's Work.

A Stone of Wax is 8 lb.

A Stone of Iron and Shot 14 lb.

A Truss of Hay is 56 lb.

A Load is 36 Trusses, or about
2000 lb. Wt.

Note. New Hay in June and Au-
gust ought to be 60 Pounds to
the Truss, as per Statute of II.
of William and Mary, 1693.

A Roll of Parchment is 5 Dozen
or 60 Skins.

A Faggot of Steel is 120 lb. Wt.

A Bale of Paper is 10 Reams.

A Ream is 20 Quires.

A Quire has 24 Sheets, but Genoa
Paper has 25.

A Hundred of Lime is 25 Bags
or Bushels.

A Load is 40 Bushels.

Laths, there must be but Fivescore
to the Hundred of 5 Foot long.

But 4 Foot long are Sixscore or
120 to the Bundle. Their

Breadth is one Inch and an
half, and half an Inch thick.

Bush.

(55)
Bushel of Sea coal is 5 Pecks.
Salt

is 36 such Bushels, and
Chaldron } on Ship-board 21 Chal-
ders is allowed to the
Score.

A Load of Timber unhew'd 40
Foot.

Bricks 500
A Load of Plain-tiles 1000

A Stone of Fleth 8 lb. and of Wooll
14 lb. The same for Horseman's
Weight, and also Hay: But Pep-
per, Cinnamon and Allom have
but 13 lb. to the Stone.

A Tun of Oyl of Greenland 252
Gallons.

How many Tuns of Copper are in
8:0:4123.4 Stones?

180 }
21-2-315
237-114-8

How many Paces are in
9:0:4267.0 Barley Corns?

180 }
21-2-474
237-1011-201

How many Pistoles are in
27:0-1242.1 Pence?

210 }
27-882
3-177
59-131

A Canister of Tea is from 75 to
100 Wt.

A Fat of Iving Glas is from 3 1/2 to
4 C. Wt.

Unbound Books half a Maund or
4 Bales.

Of Wire from 20 to 25 C. Wt.

Of Yarn from 220 to 221 Bundles.

A Fodder of Lead is 8 Pigs, each
22 Stone and a half, which is
about a Tun, or a common
Wain or Cart Load.

In the Book of Rates a Fodder of
Lead is said to be 2000 lb. Wt.
At the Mines 'tis 2200 and a
half, and among the Plummers
at London 19 Hundred and a half.

How many Furlongs are in

11:0:4274.1 Yards?
220 }
2-388
194-61

How many Packs of Wooll are in

12:0:4729.3 lb?
240 }
2-394
197-13

How many Miles are in

8:0:2127.3 Perches?
320 }
2-265
66-153

How

(56)
How many Furlongs are in

211-0-2373.4 Cubits?

440 } 4 = 215

53-414

How many Ounces of Vitriol are in

212-0-3040.5 Grains?

480 } 4 = 253

63-165

How many Hogheads of Brandy are in

212-25834 Pints?

504 } 7 = 2152

6 = 307

51-130

How many Pipes of Florence Wine are in

212-121463 Pints?

1008 } 12 = 10121

7 = 843

120-503

How many Lafts of Sand are in

8-0-2031.4 Gallons?

640 } 8 = 253

31-474

How many Furlongs are in

211-0-4234.2 Feet?

660 } 6 = 384

64-102

How many Miles are in

211-0-2341.2 Fathoms?

880 } 8 = 212

26-532

How many Pounds are in

212-0-4523.8 Farthings?

960 } 8 = 376

47-118

How many Miles are in

212-726726 Paces?

1056 } 11 = 60560

7 = 5505

688-198

How

How many square Roods are
in

$$\begin{array}{r} 11 \cdot 0 - 24356.1 \text{ sq. Yds?} \\ 121 \cdot 0 \left\{ \begin{array}{l} 8 - 812 \\ 11 - 2214 \\ \hline 201 - 351 \end{array} \right. \end{array}$$

How many Miles are in

$$\begin{array}{r} 11 \cdot 422432 \text{ Ells?} \\ 1408 \left\{ \begin{array}{l} 8 - 38402 \\ 8 - 4800 \\ \hline 2 - 600 \\ \hline 300 - 32 \end{array} \right. \end{array}$$

How many Hours are in

$$\begin{array}{r} 12 \cdot 0 : 61324.2 \text{ Minutes?} \\ 1440 \left\{ \begin{array}{l} 12 - 5110 \\ \hline 425 - 1242 \end{array} \right. \end{array}$$

How many Miles are in

$$\begin{array}{r} 11 \cdot 0 - 43254.3 \text{ Yards?} \\ 1760 \left\{ \begin{array}{l} 8 - 3932 \\ \hline 2 - 491 \\ \hline 245 - 1343 \end{array} \right. \end{array}$$

How many Tuns of Burgundy
Wine are in

$$\begin{array}{r} 12 - 524612 \text{ Pints?} \\ 2016 \left\{ \begin{array}{l} 12 - 43717 \\ \hline 7 - 3643 \\ \hline 2 - 520 \\ \hline 260 - 452 \end{array} \right. \end{array}$$

How many Tuns of Tobacco
are in

$$\begin{array}{r} 8 \cdot 0 - 32729.5 \text{ lb?} \\ 2240 \left\{ \begin{array}{l} 7 - 4091 \\ \hline 4 - 584 \\ \hline 146 - 255 \end{array} \right. \end{array}$$

How many square Miles are
in

$$\begin{array}{r} 8 \cdot 0 - 37979.5 \text{ Sq. Roods?} \\ 2560 \left\{ \begin{array}{l} 8 - 4747 \\ \hline 4 - 593 \\ \hline 148 - 919 \end{array} \right. \end{array}$$

(587)

How many Furlongs are in

$$\begin{array}{r} 12.0-47673.2 \text{ Balms} \\ 2640 \left\{ \begin{array}{l} 11-3972 \\ 2-361 \\ 180-1532 \end{array} \right. \end{array}$$

How many Miles are in

$$\begin{array}{r} 110-170402.3 \text{ Cubits?} \\ 3520 \left\{ \begin{array}{l} 8-106400 \\ 4-80000 \\ 200-23 \end{array} \right. \end{array}$$

How many square Acres
are in

$$\begin{array}{r} 11.0-62434.2 \text{ sq. Yards?} \\ 4840 \left\{ \begin{array}{l} 11-5675 \\ 4-205150 \end{array} \right. \end{array}$$

How many Lafts of Rapeseed are in

$$\begin{array}{r} 8.0-22324.2 \text{ Pints?} \\ 5120 \left\{ \begin{array}{l} 8-2790 \\ 8-348 \end{array} \right. \end{array}$$

How many Miles are in

$$\begin{array}{r} 12.0-28423.5 \text{ Feet?} \\ 5280 \left\{ \begin{array}{l} 11-2368 \\ 4-215 \end{array} \right. \end{array}$$

How many Wt. of Gold are in

$$\begin{array}{r} 12.0-34762.0 \text{ Grains?} \\ 5760 \left\{ \begin{array}{l} 12-2896 \\ 4-241 \end{array} \right. \end{array}$$

How many Miles are in

$$\begin{array}{r} 11.0-42343.2 \text{ Spans?} \\ 7040 \left\{ \begin{array}{l} 8-3849 \\ 8-481 \end{array} \right. \end{array}$$

How many Hogheads of Sugar

$$\begin{array}{r} 8.0-39294.2 \text{ Oz?} \\ 8960 \left\{ \begin{array}{l} 8-4911 \\ 2-613 \\ 2-87 \end{array} \right. \end{array}$$

How

How many Weeks are in 9.0-727684.5 Minutes? in

$$\begin{array}{r} 8 - 80853 \\ 10080 \overline{) 80853} \\ 72 - 10106 \\ 2 - 1443 \\ 21450 \\ 721 - 9165 \end{array}$$

How many square Roods are in

$$\begin{array}{r} 11 - 22480 \\ 10890 \overline{) 110247286.4} \\ 9 - 2043 \\ 2271 - 834 \end{array}$$

How many Miles are in 12.0-264375.4 Palms?

$$\begin{array}{r} 11 - 22031 \\ 21120 \overline{) 110264375.4} \\ 8 - 2002 \\ 2 - 250 \\ 125 - 3754 \end{array}$$

How many square Acres are

$$\begin{array}{r} 11 - 33613 \\ 43560 \overline{) 120427356.4} \\ 11 - 32378 \\ 3088294 \\ 98 - 4684 \end{array}$$

How many Miles are in

$$\begin{array}{r} 12 - 29054 \\ 63360 \overline{) 120348648.2} \\ 11 - 2421 \\ 40017220 \\ 55 - 1682 \end{array}$$

How many Days are in

$$\begin{array}{r} 8 - 391 \\ 86400 \overline{) 120042273.42} \\ 112 \\ 8 - 391 \\ 48 - 80142 \end{array}$$

Divi

H 2

Divi

Division by six Figures.

How many Hogheads of Iron are in

8:012432078.4 Drams?
8:304000
143360 8:40238001
7:80 4750
4: 678
169.92944

How many Tuns of Cheese are in

8:06072485.5 Drams?
8: 759060
8: 94882
573440 8: 11860
7: 1482
2: 211
105.513655

How many Butts of Copperas are in

8:06234567.8 Drams?
8: 779320
8: 97415
286780 8: 12176
7: 1522
217.147918

How many Weeks are in

12.00:110012.34 Seconds?
12: 9167
604800 7: 765
6: 109
18.114834

(618)

Division by seven Figures without and with Contraction.

How many square Miles are in How many square Roods are in
12: 40003000sq. Paces 12: 0:2423734.2sq. Inc.

12:	3333583	00010774	12:	2201977
11:	277798	00010774	11:	2216831
1115136	11:	25254	11:	221530
	8:	2386	9:	139
	8:	298	11:	15714852
		37:326968		

How many square Miles are in How many square Acres are in
11:00:283724.42sq. Yds. 12:0:4222445.4sq. Inc.

11:00:283724.42q.Yds.	12:0:4222445.4q.Inc.
11: 25793	12: 351870
8: 2344	12: 29322
3097600	11: 2443
4: 36	11: 222
9:494042	3: 20

6-4588614

Divic

Division by ten Figures.

How many Miles are in

12.00: 546012003.07 square Inches?

12:	45501000
12:	3791750
12:	315979
11:	26331
11:	2393
8:	217

4014489600

27

13-2412835507

As the last Example is the highest throughout the whole Rule of Division, I shall therefore shew you how the component Parts of the grand Divisor were found out, together with the total Remainder, which will sufficiently serve for the Knowledge of all the rest.

11:	222
11:	22

4122214-0

Digit

As to the grand Divisor.

12.00: 40144896.00	
12:	3345408
12:	278784
12:	23232
11:	1936
11:	176
8:	16
	2

Having added 2 Cyphers to 12, the first component Part, (which makes 1200) for the two Cyphers cut off to the Right-hand of the grand Divisor, since 12 can be got out of 40144896 without leaving any Remainder, I go on with the Division, saying, $\frac{1}{12}$ of 40 is 3, of 41 is 3, of 54 is 4, of 64 is 5, of 48 is 4, of 9 is 0, of 96 is 8.

Out of this Quote 3345408 I take $\frac{1}{12}$ again, which produces 278784 for another Quote, from which taking $\frac{1}{12}$ again, it produces 23232 for another, so taking $\frac{1}{12}$ once more, it gives 1936 for another, from this 1936 I take $\frac{1}{11}$ out of it, and it gives 176 for a new Quote, from which taking $\frac{1}{12}$ again, the Quote is 16, from which 16, 8 is to be got twice, so that 2, 8, 11, 11, 12, 12, 12 and 1200 are the 8 component Parts of the grand Divisor 4014489600, and if these multiplied into themselves by continued Multiplication make up the grand Divisor, the Work is right, as appears by the Margin.

4014489600

As

As to the Remainders

The first Remainder left from the first Division by 1200 is 307
 The 2d Remainder by 12 is 0
 The 3d Remainder by 12 is 2
 The 4th Remainder by 12 is 7
 The 5th Remainder by 11 is 8
 The 5th Remainder by 11 is 6
 The 7th Remainder by 8 is 1
 The 8th Remainder by 2 is 1

The last Remainder 1 multiplied by the 7th Divisor 8, and the 7 Rem. 1 taken in, is 9

This Product multiplied by the 6th Divisor 11, and the 6th Rem. 6 taken in, is 105

This Product multiplied by the 5th Divisor 11, and the 5th Rem. 8 taken in, is 1163

This Product multiplied by the 4th Divisor 12, and the 4th Rem. 7 taken in, is 13963

This Product multiplied by the 3d Divisor 12, and the 3d Rem. 2 taken in, is 167458

This Product multiplied by the 2d Divisor 12, and the 2d Rem. 0, is 2010696

This Product mult. by the 1st Divisor 1200, and the 1st Rem. 307 taken in, is 2412899307

Note. If you divide 2467348579820973485973692.37 by the foregoing Divisor, the Quotient will be 61461077886986517, and there will be a Remainder of 760646037, which you may try at your Leisure, and after this Method it may be brought into 128 Figures less than the common Way.

Object. There are some Examples such as to bring any Number of Days or Hours into Years, that tho' the 5th Part of the one's Divisor may be taken, and the 9th and $\frac{1}{2}$ Parts of the other, yet they will leave such Remainders whose 1, 3d, 4th, 5th or 6th Part, &c. cannot be taken; so that no Numbers being multiplied together will produce the given Divisor, and so consequently cannot be done by this new Way of Division.

Ans. In such Cases as the one's Divisor is 365, which is 5 Times 73, I therefore take the 5th Part of the given Dividend, and constitute this Quote arising from hence for a Dividend in its Place, and so divide it by 73, which is both done with fewer Figures, and easier wrought than could be done by 365. As also in the other 'tis likewise easier to divide by 487 than by 8766.

As, in Multiplication, I gave some Examples of its Utility in Money, so likewise I shall give a few Examples in Division, of Money, whereby may be seen how expeditiously some Things may be done without having Recourse to Reduction, the Rule of Three, &c.

Division of divers Denominations.

When the Dividend is a Number of divers Denominations, and the Divisor an Integer.

If 51 L. 19 sh. 1 d. 2 qrs. be divided among 9 Men, what is each Man's Share?

9 : L. 51 19 1 2

L. 5 15 5 2

9

Proof 51 19 - I - 2

If a Man in 12 Months spend 10 L. 9 sh. 4 d. what will his Expences be for one Month?

12: L. 10 9 4

I7 $5 \frac{4}{12}$ or $\frac{1}{3}$

In the working of this first Example, I say the 9's in 51, 5 Times, 5 Times 9 is 45, from 51, and there remains 6 *L.* or 120 Shillings, which, with the 19 *shil.* in the Place of Shillings, makes 139 *sh.* then the 9's in 13 once, so subtracting 9 from 13, 4 remains, then I say the 9's in 49, 5 Times, 5 Times 9 is 45, from 49, and there remains 4 *sh.* or 48 *d.* which, with the Penny in the place of Pence, makes 49, then the 9's in 49, 5 Times, this is 5 Pence more, and 4 remains, which being turned into Farthings, and the odd 2 Farthings taken in, makes 18, then the 9's in 18

I

twice,

twice, so that each Man's Part is 5 L. 15 *sh.* 3 *d.* 2 *qrs.* and the Truth of it is proved by Multiplication of Money, sufficiently shewn in the Rule of Multiplication, as here, 9 Times 2 is 18, 2 and carry 4, and 9 Times 5 is 45, and 4 is 49, 1 and carry 4, 9 Times 5 is 45, and 4 I carried is 49, 9 and carry 4, then 9 Times 1 is 9, and 4 is 13, one and carry 12 Angels, or 6 L. so 9 Times 5 is 45, and 6 I carried is 51 L.

Division of several Denominations by the Parts of the whole.

Let it be required to divide a Prize worth 368424 Pounds among 1728 Men, and let each Man's Part in Pounds, Shillings and Pence be demanded.

$$12 : 368424$$

$$12 : 30702$$

$$12 : 2558$$

$$L. 213 \dots 360$$

$$30$$

$$2 \text{ } 10$$

$$\text{sh. } 4 \text{ } 2$$

After the Division is finished there is a Remainder of 360 Pounds found out by the preceeding Directions, therefore I divide the same by my first component Part 12, and it quotes 30 L. which again divided by 12, my second component Part quotes 2 L. 10 *sh.* which 30 *shil.* being likewise divided by 12, my third component Part, quotes 4 *shil.* and leaves a Remainder of 2 *shil.* or 24 Pence, then 12 in 24 twice, so the Quotient, or each Man's Part, will be 213 L. 4 *sh.* 2 *d.*

Di-

Divide 233 lb. 16 Penny Wt. of broken Silver among 32 Goldsmiths. Divide 105 Yards of Gold Lace among 24 Merchants.

	lb.	Oz.	P.Wt.
8 -	233	0	16
4 -	29	1	12
	7	3	08

	Yds.	Qs.	Nails.
12 -	105		
2 -	8	3	
	4	1	2

To divide 233 lb. 16 Penny Wt. by 32, I say 8 in 23 twice, and 7 remains, then 8 in 73, 9 Times, refts 1 lb. or 12 Ounces, 8 in 12 once, refts 4 Ounces or 80 P. Wt. which added to the 16 makes 96, 8 in 96, 12 Times.

Then 4 in 29, 7 Times, refts 1 lb. or 12 Ounces, 4 in 13, 3 Times, refts 1 Ounce or 20 P. Wt. 4 in 32, 8 Times, so each Man's Part is 7 lb. 3 Ounces, 8 Penny Wt.

As to the other Example, I say 12 in 105, 8 Times, refts 9 Yards, or 36 Quarters, 12 in 36, 3 Times. Then $\frac{1}{2}$ of 8 is 4, $\frac{1}{2}$ of 3 is 1, refts 1 Quarter or 4 Nails, $\frac{1}{2}$ of 4 is 2.

Note. There might be other Examples formed where both the Dividend and Divisor are Numbers of divers Denominations, such as to know how many *Hollands Riders*, each valued at L. 1. 5. 9, are contained in 478 L. 19 sh. 10 d. the Answer would be 372, and a Remainder of 10 Pence, but they are designedly omitted here, because their Operations are both sooner and easier done by Decimal Arithmetick.

Sometimes Questions in Division cannot be answered without making Use of Division, Addition, Subtraction, and Division again, as appears by the following

E X A M P L E.

A Captain, Lieutenant and Ensign, 2 Serjeants, 2 Corporals, 2 Drums, and 50 Men, gain a Prize worth 500 L. the Captain had ¹

I 2

for

for his Share, the Lieutenant $\frac{1}{5}$, the Ensign $\frac{1}{8}$, and the Serjeants $\frac{1}{8}$, the rest was equally divided among the Corporals, Drums, and Soldiers. What was each Man's Part?

		L.			
		The Prize		500	
$\frac{1}{4}$	125	The Captain's	} Share.		
$\frac{1}{5}$	100	The Lieutenant's			
$\frac{1}{6}$	83 6 8	Ensign's			
$\frac{1}{8}$	62 10 00	Serjeants			
		370 16 08			
54	}	9. 129 03 04			
		6. 14 07 00 1			
		L. 2 07 10 $\frac{4}{34}$ or $\frac{2}{27}$			

The Captain, Lieutenant, Ensign and Serjeants Shares being added, amounts to L. 370 16. 8. which subtracted from the Prize 500 L. leaves L. 129 3. 4. to be divided among the Corporals, Drummers and Centinels; therefore by the Work, we find, they had every one 2 L. 7 *sh.* 10 *d.* and $\frac{2}{27}$ of a Penny.

Proof of Division.

Multiplication and Division mutually prove each other, for in Multiplication, if you divide your Product by your Multiplier, the Quotient will be your Multiplicand: Likewise in Division, if you multiply your Quotient by your Divisor, the Product will be your Dividend.

Examples

Examples in both.

Multiply - 9216
By - 5184

774144
470016

12-47775744

12- 3981312

5184 } 12- 331776

3- 27648

9216 Proof of the Multiplication.

5184

774144
470016

47775744 Proof of the Division.

If one lb. Wt. of Tobacco cost 5 Pence Half-penny, what will a C.Wt. or 112 lb. cost?

d. qrs.
5 2
8

3 8 0
7

1 5 8 0
2

L. 2 11 4 0

If a C.Wt. of Tobacco, or 112 lb. cost L. 2 11. 4, what will one lb. Wt. cost?

L. lb. d. qrs.
8- 2 11 4

7- 6 5

2- 11

d. 5 2

In this last Example we have proved Multiplication of divers Denominations by the Parts instead of the whole, for which Cause I shall likewise prove Division of divers Denominations by the Parts instead of the whole.

Have

(70)

If 112 lb. of Gun-powder cost 7 L. 4 sh. 8 d. how much is it a Pound?

	L.	sh.	d.	qrs.
8 -	7	4	8	
7 -		18	1	
2 -		2	7	

Having the Price of a C. Wt. to know the Price of a lb.

Observe this general Rule,

Divide by 8 and by 7 (8 Times 7 being 56, the half Hundred Wt.) and take the half of the last Quote, which half will be the Answer.

When one lb. of Copper cost 1 sh. 3 d. 2 qrs. what will a 100 Wt. cost?

	L.	sh.	d.	qrs.
		1	3	2
				8
	10	4	0	
				7
3	12	4	0	
				2
7	04	8	0	

N. B. To divide by 17 or 19, &c. may be easily performed by making the following Tablet of the Divisors 17 and 19, multiplied into the 9 Digits, as appears by the Work itself, as follows,

Having made the Tablet for the said Divisors, I multiply 17 and 19 by 2, which makes 34 and 38, then by 3 is 51 and 57, &c. then finding the Divisor will reach into the Dividend to two Places, I say, how oft 17 in 27, and by the Table, seeking for that Number or next less to it, I find it 1 Time, viz. 17 which I set un-

17) 2777 (163 ⁶/₁₇

17 ..

—

107

102

—

57

51

—

6

1	17	19
2	34	38
3	51	57
4	68	76
5	85	95
6	102	114
7	119	133
8	136	152
9	153	171

der

der 27, and subtracting it, leaves 10, to which point, and bring down the next Figure 7, then how oft 17 in 107, and by the Table, I find 6 Times, *viz.* 102, which subtracted from 107, leaves 5, to which point, and bring down 7, the next Figure of the Dividend, asking how oft 17 in 57, and by the Table, I find 3 Times, *to wit*, 51, which subtract from 57, leaves 6 for a Remainder; by this Means the Work is finished, and the Quotient is 163 $\frac{6}{7}$.

Here the Divisor likewise reaches to 2 Places, therefore I say, how oft 19 in 68, and by the Table, seeking for that Number or next less to it, I find it 3 Times, *to wit*, 57, which being set down under 68, and subtracted therefrom, leaves 11, to which I bring down the next Figure 0, then how oft 19 in 110, and by the Table, I find 5 Times, *viz.* 95, which subtract from 110, leaves 15, to which I bring down the next Figure 9, asking how oft 19 in 159, and by the Table, I find 8 Times, *to wit*, 152, which subtract from 159, leaves 7, to which I bring down the next and last Figure of the Dividend 6, asking how oft 19 in 76, and by the Table, I find 4 Times, *to wit*, 76, which subtracted from 76, leaves no Remainder; so the Quotient and Answer to the Question is 3584, which may be said to be the Number of *Hamburg* Dollars in 68096 Two Pences.

$$\begin{array}{r}
 19) 68096 \quad (3584 \\
 \underline{57} \quad \dots \\
 110 \quad \dots \\
 \underline{95} \quad \dots \\
 159 \quad \dots \\
 \underline{152} \quad \dots \\
 76 \quad \dots \\
 \underline{76} \quad \dots \\
 0
 \end{array}$$

After this Method by making a Table, you may work any Example under 100, such as, 29, 31, 37, and many more, tho' no two Numbers multiplied together can produce them or those odd Numbers themselves, which exceed 100, but in such Cases there are but few Examples, whose Operations admit not of being abbreviated after this contracted Method of Division that will ever fall out in Trade, as is evident throughout the whole foregoing Questions.

REDUCTION.

BY Reduction we change Money, Weight, Measure, &c. out of one Denomination into another, whereby we know how many of one Denomination are equal to so many of the other.

The whole Work of Reduction is divided into the following three Parts.

1. *Reduction by Multiplication.*

Which is to bring a greater Denomination into a less, as Pounds into Shillings, Shillings into Pence, Pence into Farthings, Yards into Quarters or Nails, &c.

In 28 L. 15 *sh.* 9 *d.* 3 *qrs.* how many Farthings?

L. *sh.* *d.* *qrs.*

28 15 9 3

20

575 Shillings.

12

6909 Pence.

4

27639 Farthings.

First. I multiplied by 20, and taking in the 15 Shillings make 575 Shillings, which I multiplied by 12, bringing in the 9 *d.* is 6909 Pence, these Pence multiplied by 4, and adding 3 to the Product, brings the whole into Farthings.

In

In 456 Yards of Velvet, how many Quarters and Nails?

456 Yards.

4

1824 Quarters.

4

7296 Nails.

may serve as a Proof of the Work.

And to reduce Hundreds into Ounces at one Operation, if you look to the Table of *Avoirdupois* Weight, you will find in the Angle of Meeting of those 2 Columns, where Oz. is upon the Top, and C. in the Side, 1792, as being the Number of Ounces contained in a Hundred Weight, and so of any other.

Reduce 35 C. Wt. of Allom into Quarters, Pounds and Ounces, and to Ounces at once.

35 Hund.

4

140 Quarters.

28

3920 Pounds.

16

62720 Ounces.

1792

35

62720 Ounces.

Here for Ease in the Multiplication, I have made the Number of Hundreds my Multiplier.

2. Reduction by Division.

Is when we bring a less Denomination into a greater, as Farthings into Pence, Pence into Shillings, Shillings into Pounds, and Nails into Quarters or Yards, &c.

In this Part of the Rule we will use the Converse of those Questions we had in the former Part of the Rule, which will be as a Proof of the Work.

In 27639 Farthings, how many Pounds?

$$\begin{array}{r}
 4 - 27639 \text{ Farthings.} \\
 \hline
 12 - 6909 \text{ 3 Farthings.} \\
 \hline
 20 - 575 \text{ 9 Pence.} \\
 \hline
 \text{L: } 28 \text{ 15 Shillings.}
 \end{array}$$

that being taken brings the Quotient into 575 Shillings, and there remains 9, which is 9 Pence, because the Dividend was Pence, and from the Shillings I cut off the last Figure, and took half the rest, instead of dividing by 20, observing, if 1 remain, it is 10 Shillings to be added to the Figure first cut off; so that I find by the Work 27639 Farthings to be 28 L. 15 *sh.* 9 *d.* 3 *qrs.*

When in Reduction by Division on any Thing remains after Division is ended, it is always of the same Denomination with the Dividend, as in this Example, where having taken $\frac{1}{4}$ Part of 27639 Farthings, the Quotient is 6909 Pence, and there remains 3, which is 3 Farthings, because the Dividend was Farthings, and so $\frac{1}{4}$ of

In 7296 Nails of Velvet, how many Quarters and Yards?

$$\begin{array}{r}
 4 - 7296 \text{ Nails.} \\
 \hline
 4 - 1824 \text{ Quarters.} \\
 \hline
 456 \text{ Yards.}
 \end{array}$$

In 62720 Ounces of Allom, how many Pounds, Quarters and Hundred Wt.?

$$\begin{array}{r}
 16 \left\{ \begin{array}{l} 8 - 62720 \text{ Ounces.} \\ \hline 2 - 7840 \end{array} \right. \\
 \hline
 28 \left\{ \begin{array}{l} 7 - 3920 \text{ Pounds.} \\ \hline 4 - 560 \end{array} \right. \\
 \hline
 4 - 140 \text{ Quarters.} \\
 \hline
 35 \text{ Hundreds.}
 \end{array}$$

3. Reduction by Multiplication and Division.

Under this Head may be comprised the Method of exchanging Coins, Weights and Measures, that have not that immediate Reference to one another, as those spoken of before; so that to change one

one Sort of Money or Weight, &c. into another, is only to reduce both into one Name, whether Shillings, Pence or Farthings, and then divide the greater by the less Numbers, and the Quotient will be the Answer.

E X A M P L E S.

In 1234 Flanders Ducatoons, each valued at *£* 6 3, how many Barcelona Ducats at *£* 5 4 *£* 6 3

12	12
64	75

$$\begin{array}{r} 1234 \\ 75 \end{array}$$

$$\begin{array}{r} 8-92559 \\ 64 \left\{ \begin{array}{l} 8-11568 \end{array} \right. \end{array}$$

Answer 1446 Barcelona Ducats, and 6 Pence over.

In *£* 4 12 6, how many Portuguese Felloons, each at *£* 1 3

12	12
40	12
852	15

$$\begin{array}{r} 852 \\ 12 \\ 3-2046 \end{array}$$

682 Felloons.

When a Yard of Crimson Velvet costs *£* 3 1 4, what will an English Ell cost?

$$\begin{array}{r} 4-15\ 6\ 8 \\ \underline{\hspace{1cm}} \\ L.\ 3\ 16\ 8 \end{array}$$

In this last Example, having added the several Pieces together, I reduce the Sum *£* 4 16 and *£* 3 1 4, both into Shillings, then dividing the greater by the less, quotes 4 Pieces of each for the Answer.

The Third of the foregoing Operation will thus be proved, viz. multiply the Answer by the Parts or Pieces into which the given Number

(76)

In 567 Seville Ryals at *sb.* 4 7 1
how many Pounds Sterl. 12

$$\begin{array}{r}
 55 \\
 4 \\
 \hline
 221 \\
 567 \\
 \hline
 12.0 - 12530.7 \\
 960 \left\{ \begin{array}{l} 12.0 - 12530.7 \\ 8 - 1044 \end{array} \right. \\
 \hline
 130 \frac{160}{35}
 \end{array}$$

Ans. L. 130 10 6 3

In 532 Pipes of Wine, how ma-
ny Hogheads of 63 Gallons?

$$\begin{array}{r}
 532 \\
 126 \\
 \hline
 67032 \\
 63 \left\{ \begin{array}{l} 9 - 67032 \\ 7 - 7448 \end{array} \right. \\
 \hline
 1064
 \end{array}$$

A Banker is desirous to change L. 201 12 into the following Pieces of Gold, viz. Moydores at L. 1 7, Jacobus's at L. 1 5, Carolus's at L. 1 3, Guineas at L. 1 1, and he will have of each Sort an equal Number of Pieces, I desire to know the Number?

Moydores	L. 1 7	L. 201 12	If 96	1 4032
Jacobus's	1 5	20		
Carolus's	1 3			
Guineas	1 1	4032		

$$\begin{array}{r}
 4 \ 16 \\
 20 \\
 \hline
 96
 \end{array}$$

$$96 \left\{ \begin{array}{l} 12 - 4032 \\ 8 - 336 \end{array} \right.$$

Answer 42 Pieces.

In this last Example, having added the several Pieces together, I reduce the Sums L. 4 16 and L. 201 12, both into Shillings, then dividing the greater by the less, quotes 42 Pieces of each for the Answer.

The Truth of the foregoing Operation will thus be proved, viz. multiply the Answer by the Parts or Pieces into which the given Number

Number was reduced, and having added the several Products together, if their Sum be equal to the given Number, the Answer is right, otherwise not.

L.	1	7.	I	5.	I	3.	I	I.		L.	Sh.
		7		7		7		7	} Moydores : : 56 14 Jacobus's : : 52 10 Carolus's : : 48 6 Guineas : : 44 2		
		<u>9</u>		<u>8</u>		<u>8</u>		<u>7</u>			
		9		8		8		7			
		6		6		6		6			
		<u>56</u>		<u>52</u>		<u>48</u>		<u>44</u>			
		14		10		6		2			
										The Total Sum of them	208 12

which total Sum is equal to the Money that was first given to be changed, and therefore the Operation was rightly performed.

The GOLDEN RULE, or RULE of THREE.

IT is called the *Golden Rule* from its excellent Performances in Arithmetick, as in other Parts also of mathematical Learning; and the *Rule of Three*, because from three Numbers given, proposed, or known, we find out a fourth Number required or unknown, which bears such Proportion to the third, as the second doth to the first Number. From whence also it is called the *Rule of Proportion*.

And of this Proportion there are two Sorts, one called *Direct*, and the other *Indirect* or *Reverse*.

Direct Proportion is, when the second and third Numbers are multiplied together, and their Product is divided by the first. *Indirect or Reverse Proportion*, is, when the first and second Numbers are multiplied together, and their Product is divided by the third. In direct Proportion, the fourth Number, or Answer to the Question, contains the third Number as often (or as many Times) as the second contains the first.

But in *indirect Proportion*, the greater the third Number is, the less is the fourth ; and the lesser the third Number is, the greater is the fourth.

The stating the Question.

The chiefeſt Difficulty that occurs in the *Rule of Three*, is the right placing the Numbers, or ſtating the Question, for when that is done, you have nothing more to do but to multiply and divide, and the Work is done.

And to this End we are to remember, that of the three given Numbers, two of them are always of one Name or Denomination, and the other Number is ever of the ſame Name with the fourth Number, or Answer required, and muſt always be the ſecond or middle Number, and the Number that aſketh the Question, muſt ſtill poſſeſs the third or laſt Place, and the other Number of the ſame Name with the third, muſt be the firſt Number, for the firſt and third Numbers muſt always be of one Name, *viz.* both Money, both Weight, both Time, or both Measure: And tho' they be of one Kind, yet if one of them is altered by Reduction from an high to a lower Name, then the other muſt be reduced to the ſame Name. For you muſt particularly note, that if either the firſt or third Numbers conſiſt of ſeveral Denominations, that is, of Pounds and Shillings, or Pounds, Shillings and Pence, or of Pounds, Shillings, Pence and Farthings, or of Tuns, Hundreds, Quarters and Pounds, &c. then muſt they be reduced to the loweſt Name mentioned. And if one happen to be of divers Denominations, and the other but of one Name, then the Number of one Name muſt be reduced as low, or into the ſame Name with the other; as ſuppoſe the firſt Number is brought into Farthings, then the third Number, tho' but Pounds, muſt be brought into Farthings alſo. Then you are to multiply the ſecond and third Numbers together, (when the Proportion is *direct*) and divide the Product by the firſt Number, and the Quotient thence ariſing will be the Answer to the Question, and in the ſame Name with the middle Number; and if in a ſmall Denomination, it muſt be brought by Diſiſion to the higheſt Name, for the better underſtanding the Answer. You muſt alſo note, That if the middle Number be of ſeveral Denominations, it muſt be brought into the loweſt mentioned.

E X.

EXAMPLES

Ex. I. If 6 Gallons of Cana-
ry cost 1 *L.* 2 *sh.* 10 *d.* 2 *qrs.*
what will 14 Gallons cost, at that
Rate?

Gal. L. sh. d. qrs. Gal.

6 - 1 - 2 - 10 - 2 - 14

3] 8 - 0 - 1 - 2

2 - 13 - 4 - 2 Answer.

This, and other Questions of
the like Kind, may be answered by
Contraction thus. Multiply the Mo-
ney by Half of the third Term,
and divide the Product thereof, by
Half of the first Term.

Here the first and third Num-
bers are of like Name, viz. both
Gallons, and the second Number,
being of four Denominations, viz.
Pounds, Shillings, Pence and Far-
things, occasions the fourth Num-
ber to be likewise Pounds, Shil-
lings, Pence and Farthings.

Ex. II. A Merchant gave 32
Lib. Weight of Silk to a Silk-wea-
ver, who returned him 42 Yards,
3 Quarters and 2 Nails of Silk
Stuff, how many Yards of the Silk
Stuff must be returned, by the

Weaver, for 48 *Lib.* of the same
Silk received?

Lib. qrs. qrs. na. Lib.

32 - 42 - 3 - 2 - 48

2] 128 - 2 - 2

64 - 1 - 1 Answer.

Here I take $\frac{1}{2}$ of my first and
third Terms, which is 16 and 24,
then $\frac{1}{2}$ of both gives 3 for a Mul-
tiplier, and 2 for a Divisor.

Ex. III. If 14 *Lib.* Wt. of Sugar
cost 5 *sh.* 3 *d.* what will 46 *C.*
Wt. cost at that Rate?

L. sh. d. C.W.

14 - 5 - 3 - 46

12 - 112

63 - 5152

Here you may see, tho' the 3d.
Number be hundred Weights, yet
it must be reduced to Pounds, be-
cause the first Number is Pounds.
Then the Question will stand thus.

If 14 *Lib.* Wt. of Sugar cost 63
Pence, what will 5152 *Lib.* cost?

L.

<i>L.</i>	<i>d.</i>	<i>L.</i>	
14	-	63	5152
		63	<u> </u>
14	}	7	324576
		2	<u>46358</u>
		12	<u>23184</u>
			Pence.
			<u>193.2</u>
			<i>L.</i> 96.12

By following the brief Methods, demonstrated in Multiplication and Division, this, and all the other Examples are contracted. It might still have been wrought in fewer Figures, by taking $\frac{1}{4}$ out of my first and second Numbers, then the Multiplier would be 9. and the Divisor 2.

Ex. IV. If 24 Yards of Camblet cost 4 *L.* 16 *sb.* I demand how many Yards I may buy for 126 *L.*

You see, according to this Disposition, that the first and third Numbers are not of the same Name, for which Cause, the Question must be thus formed.

If for 4 *L.* 16 *sb.* I have 24 Yards of Camblet, how many Yards shall I have for 126 *Lib*?

<i>L.</i>	<i>sb.</i>	<i>Yards.</i>	<i>L.</i>
4	-	16	24
20		210	20
$\frac{1}{12}$ -96		8-5040	$\frac{1}{12}$ -2520
8		630 <i>Yds.</i>	210

Having reduced my first and third Terms into Shillings, I multiply my second Term, by $\frac{1}{12}$ of the latter, and divide that Product, by $\frac{1}{12}$ of the former, viz. 8.

Ex. V. If 15 Ounces of Silver be worth 3 *L.* 15 *sb.* what are 86 Ounces worth at that Rate?

<i>Ou.</i>	<i>L.</i>	<i>sb.</i>	<i>Ou.</i>
15	-	3	15
		15	86
		5	<u> </u>
		5	430
			<i>L.</i> 21.10

Here I divide my second Number by my first, viz. 3 *L.* 15 *sb.* first by 5. and that Quote again by 3. since 5 times 3 makes 15 my first Term, and with the last Quote 5. I multiply my third Term 86. which turns it into Shillings, and so halves it.

Ex.

Ex. VI. If 8 *Lib.* Wt. of Pepper cost 4 *lb.* 8 *d.* what will 7 *C.* 3 Quarters, and 14 *Lib.* cost?

<i>Lib.</i>	<i>lb.</i>	<i>d.</i>	<i>C.</i>	<i>Qrs.</i>	<i>Lib.</i>
8	4	8	7	3	14
12			4		

56 31

28

882

7

12 - 6174

51.4

L. 25 - 14 - 6

Having reduced the third Number into *Lib.* Wt. I multiply it by 7 the Quote of the second Number by the first, which turns the Product into Pence, and then divide the same by 12. to bring it into Shillings, and so halve it.

Ex. VII. A Draper bought 42 *C.* Yards of broad Cloth, and gave for it after the Rate of 14 *lb.* 10 *d.* 3 *qrs.* per Ell *Englsh.* I demand how much he paid for the whole, after that Rate?

Ell.

Yards.

420

4

lb. *d.* *qrs.*

If 5 Quarters 14 - 10 - 3 what 1680 *Qrs.*

12

8 - 18 - 09 - 0

7

62 - 11 - 3 - 0

4

L. 250 - 05 - 0 - 0

Having reduced my first and third Terms into Quarters, I divide the latter by the former, quotes 336. whose $\frac{1}{4}$ is 28. and $\frac{1}{4}$ of 28 is 4. So multiplying my second Term, first by 12. and that Product by 7. and the last Product again by 4 (the 3 component Parts of 336) gives 250 *L.* 5 *lb.* for the Answer.

Ex. VIII. A Grocer bought 4 Hogsheads of Sugar, each weighing 6 *C.* 2 *Qrs.* 14 *Lib.* which cost him 2 *L.* 8 *lb.* 6 *d.* per hundred Wt. I demand the Value of the 4 Hogsheads, at that Rate?

L.

C. *Qrs.*

C. grs. Lib.

6 - 2 - 14

4

26 - 2 - 00

4

106

28

If 112 l. cost L. 2 - 8 - 6 what 2968 l. W.

13

31 - 10 - 6

2

63 - 1 - 0

1 - 4 - 3

L. 64 - 5 - 3

Since my first Number is 1 C. Wt. and my third Number is 26 C. and a Half, I only multiply my second Number first by 13, and that Product again by 2. and it produces L. 63 - 1. for the Price of the 26 C. Wt. to which I add $\frac{1}{2}$ of L. 2 - 8 - 6. for the 2 Quarters, or $\frac{1}{2}$ C. Wt. and it gives L. 63 - 5 - 3. as being the Price of the whole.

Note. When the first of the three given Numbers is an Unit or One, the Work is performed, or Answer found by Multiplication.

Ex. IX. If I am to give 13 Shillings for 1 Yard of broad Cloth, what must I give for 112 Yards at that Rate?

Yds. sh. Yds. 8 - 4 - 8

If 1 - 13 - 112

13

Answer 1456 sh. or 72 l. 16 sh.

Ex. X. If I buy 63 C. Wt. of Rose Copper, at L. 9 - 16 - 6 the C. Wt. how much will the whole cost?

C. L. sh. d. C. Wt.

If 1 - 9 - 16 - 6 - 63

9 and by 7.

88

08 - 6

7

L. 618 - 19 - 6 Answer.

The foregoing Work is performed by the component Parts of Multiplication of Money, as taught in that Rule. When the third, or last of the three given Numbers, is an Unit or one, then the Work is performed by Division.

Ex. XI. If a Gentleman's Expences monthly, consisting of 28 Days, amount to L. 144 - 14 - 4. what is that a Week?

4 - L.

4 - L. 144 : 14 : 4

L. 36 - 3 - 7

Ex. XII. When a Tun of Wine costs 53 L. 11 *sh.* what is that a Gallon?

252 } 12- L. 53-II-00
7- 4-9-3
3- 12-9
fb. 4-3

This Example is wrought by Division of Money, and by component Parts, as before taught in the Rule of Divition.

Once more, admit a Chalder of Oats should cost any Sum of Money, and that you would know what a Peck is worth. Now, as 256 Pecks make a Chalder, divide the Money that the Chalder is valued at, first by 8. and that Quote again by 8. and the last Quote by 4. and it will produce the Price of one Peck; because 8, 8 and 4 are the component Parts of 256. the Number of Pecks contained in a Chalder, as is evident by the Table of dry Measure used in *Scotland*, Page 18. and likewise by the first Example, Page 48. in Division.

Ex. XIII. When a Chalder of Oats costs *L.* 4 - 5 - 4. what is that a Peck?

$$\begin{array}{r} 256 \left\{ \begin{array}{l} 8 - L - 4 - 5 - 4 \\ 8 - 10 - 8 \\ 4 - 1 - 4 \\ d - 4 \end{array} \right. \end{array}$$

Here the Answer is a Groat, or 4 Pence; so by taking careful Notice of this Direction, you may know, by having the Price of a *lib.* of Gold, or Silver, &c. what an Ounce or Penny Weight will cost; or, if you have the Price of a Tun of Cheese, or Tallow, &c. you may know what a Hundred, Quarter, Stone, or Pound will cost: And by having the Price of a Tun of Wine, you may know what a Pipe, Puncheon, Hogshead, Terce, Barrel, Rundlet, Gallon, or Pint costs. The like is to be understood throughout the whole Tables in Addition, whose component Parts, to divide by, you will find in Division.

Ex. XIV. A Soldier's weekly Pay, which is 3 *lb.* 5 *d.* is forborn for three Years, nine Months and ten Days, what is then due?

L 2

Y. M.

r. M. D.

3 - 9 - 10

365 28

1095

262

If 7 Days 41 Pence, what 1357 Days?

41

7 - 55637

12 - 7948 Pence.

66.2

L. 33..2 - 4¹

Ex. XV. A Merchant at *Edinburgh* buys 48 Tuns of *Holland, Genever* for L. 325 13 5 3. the Freight thereof from *Rotterdam* to *Leith* costs L. 150 16 9 1. for Loading and Unloading L. 7 10. for Custom L. 9. the Charge of the Cellar L. 5. for Carriage to *Edinburgh* sh. 18. and would gain L. 198 16 11 ¹/₂ by the Bargain.

A Gentleman demands the Price of 8 Tuns of the said *Genever*.

The Question is what he must give.

By Addition, find the total Sum of the Freight, with all the Expences, and Gain, thus.

Prime Cost	L. 325 13 5 3
Freight	150 16 9 1
Loading and unload.	7 10 0 0
Custom	9 0 0 0
Cellar Rent	5 0 0 0
Carriage to <i>Edin.</i>	18 0 0
To be gained	198 16 11 2

L. 697 15 2 2

Then say, If 48 — 697 ^{Tuns} L. sh. d. q^r. ^{Tuns} 15 2 2 — 8

116 5 10 1 ¹/₂

Here I divide my Money by 6, as being ¹/₆ of the first Term, because the third Term is dwindled to an Unit.

Ex. XVI, A certain Person having made a Voyage to *Legborn*, where he continued 24 Days, during which Time he spent L. 56, and being to go to *Marseilles*, where he was obliged to remain 36 Days, the Question is, to know how much Money he must have with him to defray his Charges, in Proportion to the L. 56, which he had spent in his first Voyage, where he remained 24 Days?

Days.

Days.	L.	Days.
24	56	36
	3	
2	168	
	84 L.	

Here I multiply my second Term by 3, and divide that Product by 2, as being $\frac{1}{2}$ of my 1st and 3d Terms, which produces L. 84 for the Answer.

Proof of the GOLDEN RULE.

If 4 Numbers be proportional, the Product of the two Means is equal to the Product of the two Extremes.

Hence, to prove your Work, multiply the 4th Number found by the 1st Number, and if that Product be equal to the Product of the 2d by the 3d, the Work is right else not.

Ex. XVII. If 18 Yards of Musline cost L. 4. how many Yards may one have for L. 96?

L.	Yds.	L.
4	18	96
	24	
	432 Yards	

When the 4 proportional Numbers will be gained by saying, If 18 Yards of Musline will cost L. 4. how many Yards will cost L. 96?

The Prod. of the 2. and 3. } 1728 1728 } the Prod. of the 1. and 4.

You see the Product of the 1st and 4th, is equal to the Product of the 2d and 3d, which shews your Work to be right.

Proof a second Way.

To make the Proof of this Example, and generally of all others, we shall make a second Example in the Rule of Three, contrary to the former, pretending to be ignorant how many Yards of Musline one would have for L. 96, saying, If for L. 96 I shall have 432 Yards of Musline, how many Yards shall I have for L. 4?

L.	Yds.	L.
96	432	4
12	36	
2	18 Yds.	

This

This same Example in the Rule of Three may be again thus proved, saying, If 18 Yards of Musline cost L. 4 how much will 432 Yards cost?

$$\begin{array}{r} \text{Yds.} \quad \text{L.} \quad \text{Yds.} \\ 18 \quad 4 \quad 432 \end{array}$$

$$\begin{array}{r} 24 \\ \hline 96 \text{ L.} \end{array}$$

It can be again thus proved a 4th Way.

If 432 Yards of Musline cost L. 96, how much will 18 Yards cost?

$$\begin{array}{r} \text{Yds.} \quad \text{L.} \quad \text{Yds.} \\ 432 \quad 96 \quad 18 \\ \hline 18 \\ \hline 1728 \end{array}$$

It appears by this Demonstration, that any Question in the Golden Rule proves it self as many Ways, as it hath Terms.

The Rule of Three Reverse, or of indirect Proportion.

What *indirect Proportion* is hath been hinted already.

Indirect Proportion, the Product of the first and fourth Numbers, is equal to the Product of the second and third.

But, in this Proportion, the Product of the third and fourth Numbers is equal to the Product of the first and second.

The Method of stating any Question in this Rule is the same with that of the direct Rule.

For the first and third Numbers must be of one Name, or so reduced as in that Rule, and the Number that moves the Question must possess the third Place, and the middle Number will be of the same Name with the Answer, as it is there.

To know when the Question belongs to the *Direct*, and when to the *reverse* Rule.

When the Question is stated as above said, consider, whether the Answer to the Question ought to be more or less than the second Number; if more, then the lesser of the first and third Numbers, must be your Divisor.

But if less, then the bigger of the two extreme Numbers must be your Divisor.

And if the first Number of the Three is your Divisor, then the Proportion is *Direct*; but if the last of the three given Numbers is your Divisor, the Proportion is *Indirect* or *Reverse*.

Or

Or, without regard either to *Director or Reversed*
 If more is required, the lesser } is Divisor.
 If less, the greater }

EXAMPLES.

Ex. I. If 12 Men plane 360 Deal Boards in 8 Days, how many Men will plane them in 6 Days?

If 8 Days require 12 Men, what 6 Days?

6 96

Answer 16 Men.

Ex. II. If a Board be 8 Inches broad, how much in Length will make a square Foot?

In. b. In. l. In. l.

12 12 8

12

8- 144

Answer 18 Inches long

In this **Ex. I.** the first and second Numbers are multiplied together (as they always must be) and their Product is divided by the third; for it is most certain, that 6 Days will require more Hands to perform the Work than 8 Days, therefore the lesser of the extreme Numbers is the Divisor, and declares the Question is in the *indirect Proportion*.

Likewise in the second Example, 8 Inches in Breadth must needs require more in Length to make a Foot, than 12 Inches in Breadth; wherefore it is in the same Proportion with the first Example, because the Divisor is the third Number.

Ex. III. If 360 Men be in a Garrison, and have Provisions for 6 Months, but hearing of no Relief till the End of 9 Months, how many Men must be turned out, that the Provision may last so much longer?

Mo. Men Mo.

6 360 9

40

6

240 Men to be retain'd,

and the Remainder to 360 viz. 120 must be turned out.

This Question, with several others, is contracted by dividing the 2d Term by the 3d, and multiplying that Quote by the first.

Ex. IV. If 24 Men have Provisions in a Place for 12 Days, but being desirous to reduce the Number to 15 Men, I demand in such Proportion as the 24 Men ought to live 12 Days upon the Provisions given them, how long the 15 re-

maining ought to be subfifted upon the same Provisions?

Men	Days	Men
24	12	15
	8	

5- 96

19 Days

$\frac{1}{3}$ of the 1st and 3d Terms being taken, gives 8 for a Multiplier, and 5 for a Divisor.

Ex. V. 850 Men being Guard total Town besieged, who had only Provisions for 18 Days, but they hoping the Siege would be raised in 30 Days; how many Men must depart from the Place, so that the rest in the Town may be subfifted with the same Provisions, till the 30th Day that the Siege ought to be raised?

Days Men Days.

18 850 30

6

100 3100 Men to defend the Town

340 Men to go out.

Here we see, if this Question was in the Rule of Three direct, 30 Days would give more than 18; but in this it is the contrary, for the more Days there are, the fewer

Men must be kept; therefore the 3d Number must be the Divisor to the Product of the two first, as appears by the Work.

The Threes being taken out of the 1st and 3d Numbers, gives 6 for a Multiplier, and 10 for a Divisor; so the Quote is 510 Men to stay, which being subtracted from 850, there must 340 go out.

The preceeding Example may be proved by this.

Ex. VI. If the Victuals in a Town can subfist 510 Men 30 Days, how many Men must there be to consume the same Provisions in 18 Days?

Days Men Days

30 510 18

850 Men.

Here I suppose a Cypher to be added to my 2d Number, because I was to have multiplied it by 10, the 3d Part of my first Number, and so divide it by 6 the 3d Part of my 3d Number.

Ex. VII. If 136 Masons in 28 Days or a Month, be able to build a Fort to preserve the Soldiers from the Enemy, and such Haste requires, that the same must be fini-

finished in 8 Days, how many Work-men must be appointed?

Days. Masons. Days.

28 136 8

17

476 Masons.

Here I divide the 2d Term by the 3d, and with the Quote thereof I multiply my first Term, then after considering that the 4th Number sought, will be more than the second, because 8 Days will needs require more Hands than 28 Days, I multiply the middle Number by the greater Extreme, and divide by the less.

Ex. VIII. If 48 Joyners do a Piece of Work in 24 Hours, and such need requireth that 384 Joyners are set to the finishing of that Piece of Work, in what Time will they do it?

Joyners. Hours. Joyners.

48 24 384

3 Hours.

Here I take $\frac{1}{2}$ of my 2d and 3d Terms, which is 2 and 32, then dividing 32 by 2, quotes 16, by which I divide my 1st Term, and it quotes 3 Hours for the Answer.

Note. If this Question was wrought after the common Way, upon Consideration, that the fourth Number sought will be less than the second, because 384 Men will needs require less Time, than 48 Men, I behoved to multiply the middle Number, by the less Extreme, and divide by the greater.

Ex. IX. How many Yards of Stuff, $\frac{2}{3}$ of a Yard broad, will line a Cloke, containing $4\frac{1}{2}$ Yards in Length, and is $1\frac{1}{2}$ Yards broad?

Yr. broad. Yr. length. Yr. broad.

6 — $17\frac{1}{2}$ — 3

2

34 Quarters, or 8 Yards and an Half.

The first Term being divided by the 3d, quotes 2, by which multiplying the second Term, produces 34 Quarters for the Answer.

Ex. X. How many Yards of Sarcenet, of three Quarters wide, will line 9 Yards of Cloth of 8 Quarters wide?

Yds wide. Yds long. Yds wide.

If 8 - 9 - what 3

3

Yards 24 Answer.

Here the narrower the Silk, the more in Length is required.

M

Ex.

Ex. XI. A Nobleman designing to have Liveries made for 30 Footboys, which 13 Taylors will make in three Days; but such Haste is required, that they must be made in six Hours: I demand how many Taylors must be employed to make them?

Hours.	Taylors.	Hours.
72	13	6
	12	
	156	Taylors.

Having divided my first Number by my 3d, quotes 12, with which I multiply my second Number, and it produces 156 for the Answer.

Ex. XII. A certain Farmer had a Horse, that he was willing to dispose of, agreed to let a Tobacconist have him, for 206 Lib. of

Tobacco, which the Tobacconist condescended to, provided he delivered the Horse, and received his Tobacco, while it remained at that Price it was then at, which was 14 *d.* per Lib. but the Farmer delayed, till the same Tobacco advanced to 2 Shillings per Lib. How much Tobacco must the Farmer have for his Horse?

$$\begin{array}{r} \text{d.} \quad \text{Lib.} \quad \text{d.} \\ \text{If } 14 - 206 - 24 \\ \quad \quad \quad 7 \end{array}$$

$$12 - 1442$$

$$120 \text{ Lib. } \frac{2}{3}$$

Here I multiply my second Number by $\frac{2}{3}$ of my first, and divide the Product, by $\frac{1}{3}$ of my third.

The Proof of the single Rule of Three inverse.

If the Product of the fourth Term, multiplied by the third, be equal to the Product of the second, multiplied by the first, then the Work is truly performed, otherwise not: But withal remember, That if any Thing remain after Division is ended, it must be added to the Product of the third and fourth Numbers.

Ex. XIII. If 36 Clerks in 24 Days finish a Piece of Writing, in what Time would 48 Clerks accomplish the same?

Clerks,

Clerks.	Days.	Clerks.	Clerks.	Days.	Clerks.	Days.
36	24	48	3	24	4	18
	3			3		4
	<u>4</u>			<u>72</u>		<u>72</u>

18 Days.

Here I multiply my second Number by $\frac{1}{2}$ of my first, and divide the Product by $\frac{1}{4}$ of my third; so the four Terms, being duly ranked, will stand as followeth.

The fourth Term (18) being multiplied by 4 the third Term, because so many 12's are contained in 48. is 72. which is equal to the Product of 24, the second Term by (3) the first, there being likewise so many 12's in 36.

The double RULE of THREE direct.

Questions in this Rule, have five given Numbers, to find a sixth in Proportion, three of which imply a Supposition, and the other two a Demand.

Questions in this Rule may be answered, by two single Rules of *Three*, viz. at two Statings, or by one Rule composed of the five given Numbers.

This first Question is performed both Ways.

And, to make your Questions answer by a Rule composed of five given Numbers, which is the more usual Method, observe the Manner following.

State your Question, so that the Numbers may stand in one continued Rank, and in such Order, that the first and fourth Numbers may be of one Denomination, and the second and fifth of another.

Then multiply the two first Numbers together for a Divisor, and the three last together for a Dividend, and the Quote will be the

M 2

Answer,

Answer, in the same Name with the middle or third Number, which middle or third Number bears the Term of the Question, and must always be in the middle of the five Terms.

If the Carriage of 20 Packs from *Edinburgh* to *Inverness*, which is 136 Miles, cost L. 16. what will the Carriage of 12 Packs from *Edinburgh* to *Perth* cost, being 28 Miles?

P. L. P.
If 20 cost 16, what 12?

12
—
2.0- 19.2

L. 9. 12

In the first Stating the Answer is, that if 20 Packs cost 16 L. the 12 Packs will cost 9 L. 12 *sh.* or 192 Shillings.

Then I say in the next Stating, If 136 Miles Carriage cost 192 Shillings, what will 28 Miles Carriage cost? Now having multiplied my second Number of the second Stating by the 4th Part of my third Number, and divided that Product by the 4th Part of my first Number, I find the Answer is 39 Shillings, and a Remainder of 18, which being multiplied by 12, and the Product divided still by my first Number, gives 6 Pence and $\frac{12}{136}$ or $\frac{3}{34}$ of a Penny remaining, and the Answer of the Work is L. 1 19 6 $\frac{3}{4}$, and so much will 12 Packs cost for 28 Miles Carriage, if 20 Packs cost L. 16 for 136 Miles Carriage.

M. *sh.* M.

Then say again, If 136 cost 192, what 28?

34- 1344 (3. 9

102

— 1 19 6 $\frac{3}{4}$

324

306

18

12

216 (6

204

12

34 or $\frac{3}{4}$

You

You must particularly note, That in all Operations where the Answer to the Question is found by two *Rules of Three*, the Answer of the first Stating is ever the middle Number of the second Stating or Work, as in the preceeding Examples is plainly seen.

The foregoing Question answered by a Rule composed of the 5 given Numbers, thus ;

(1)	(2)	(3)	(4)	(5)
P.	M.	L.	P.	M.
If 20	136	16	12	28
	20		12	
2720		336		
		16		
		5376 (1)		
		2720		
		2656		
		20		
		53120 (19)		
		2720		
		25920		
		24480		
		1440		
		12		
		17280 (6)		
		16320		
		96 101 481241121 61		
		272 101 361681 34171		

In the Work, in stating the Question, the first and fourth Numbers are made of one Name, and the second and fifth, and then the two first Numbers are multiplied together for a Divisor, and the last three Numbers are multiplied together for a Dividend, and the Quotient or Answer is in the same Name with the middle Number, viz. *L.* as in the Work, I find the first Quotient 1 *L.* and so I proceed from one Denomination to another, till I find the same Answer, as in the Work, at two Statings, viz. 1 *L.* 19 *sh.* 6 *d.* 2.

This

This Method of Operation serves to answer all Questions in the *Double Rule of Three Direct*.

Ex. II. If 336 lb. Wt. of Bread serve 6 Persons for 2 Months, how many Quarters are enough for a Family of 18 Persons for a Year? *Ans.* 54 Quarters.

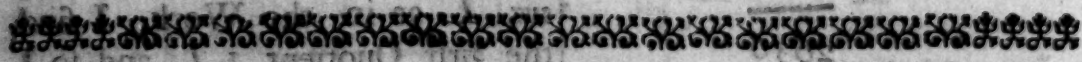
Ex. III. If 40 Bushels of Oats be enough for 8 Horses 20 Days, how many Bushels will serve 48 Horses 12 Days? *Ans.* 144 Bushels.

Ex. IV. If 8 Reapers have L. 3 for 4 Days Work, how much will 24 Men have for 16 Days Work? *Ans.* L. 38 8.

Ex. V. If 3 Quarters of Malt serve 6 Persons for 2 Months, how many Quarters are enough for a Family of 18 Persons for a Year? *Ans.* 54 Quarters.

Ex. VI. If 8 Cannons in 1 Day spend 48 Barrels of Powder, how many Barrels will 24 Cannons spend in 12 Days? *Ans.* 1728 Barrels.

Ex. VII. If 45 Fathoms of Mason Work be done by 18 Men in 3 Days, how many Fathoms can be done by 15 Men in 12 Days? *Ans.* 150 Fathoms.



The double RULE of THREE inverse.

Questions in this Rule are wrought by two single Rules of *Three*, as those in the foregoing Rule; but observe, that one of the Statings (and never but one) will fall out to be *inverse*, and must be wrought accordingly.

Any Question in this Rule also may be answered by the compound Rule of 5 Numbers, observing to make the 2d and 4th Numbers of like Name, and the 3d and 5th.

Then multiply the 3d and 4th Numbers together for a Divisor, and the other 3 remaining Figures or Numbers together for a Dividend, and the Quote will be the Answer in the same Name with the first Number.

EX-

EXAMPLES.

I. If a Regiment consisting of 936 Soldiers can eat up 351 Quarters of Wheat in 168 Days, how many Soldiers will eat up 1404 Quarters in 36 Days, at that Rate?

Quar.	Sold.	Quar.
351	936	1404
	1404	
	3744	
13104		
351)1314144(3744		
1053		
2611		
2457		
1544		
1404		
1404		
1404		

Days.	Sold.	Days.
168	3744	36
	168	
28.	628992	
56	78624	
57.		
	11232	Soldiers.
	1001	
	3931	
	62899	
	78624	
	3931	
	3931	

In this Work the 3d and 4th Numbers are multiplied together by the first, and then the first is multiplied by the second or the third, and that Product by the fifth Number, and the Product is divided by 1000, and the Quotient is 11232 Soldiers, and the Answer to the Question as may be seen in the Work.

B.
 Ex. II. 100 Men in 20 Days mow 72 Acres, in how many Days will 8 Men mow 24 Acres? how many Pioneers will cut a Trench 168 Yards long in 16 Days?
 Answer 222 Pioneers.

(96)

By one Operation.

(1) Soldiers.	(2) Quarters.	(3) Days.	(4) Quarters.	(5) Days.
936	1404	56	351	168
	936		56	
	1314144		19656	
	168			

19656) 220776192 (11232 Soldiers.

19656

24216

19656

45601

39312

62899

58968

39312

39312

In this Work the 3d and 4th Numbers are multiplied together for a Divisor, and then the first is multiplied by the second, or the second by the first, and that Product by the fifth Number, and the Product 220776192 is divided by 19656, and the Quotient is 11232 Soldiers, and the Answer to the Question, as may be seen in the Work.

Ex. II. If 6 Men in 24 Days
mow 72 Acres, in how many
Days will 8 Men mow 24 Acres?
Answer 6 Days.

Ex. III. If 18 Pioneers in 12
Days, cast a Trench 24 Yards long,
how many Pioneers will cast a
Trench 168 Yards long in 16 Days?
Answer 252 Pioneers.

Ex.

Ex. IV. If the Carriage of 12 C. Wt. for 100 Miles costs 5. L. 12 *lb.* how many C. Wt. may be carried 150 Miles for 12 L. 12 *lb.* at that Rate? *Answer*, 18 C. Wt.

Ex. V. If 12 Students in 8 Weeks, spend 48 L. I demand how many Students will spend 288 L. in 18 Weeks? *Answer*, 32 Students.

The R U L E of F E L L O W S H I P

IS for Merchants, or other Traders, where they have joint Stocks in Company, to distribute unto every one his proportional Share of the Gain or Loss, according to his Stock laid out.

It is divided into two Parts, commonly called, the *single* and *double Rule of Fellowship*. Of which in their Order.

In the *single Rule*, having the particular Stocks, and the whole Gain or Loss, to find each particular Gain or Loss, observe this general Rule.

As the total Sum of the Stocks,

To the total Gain or Loss :

So each Man's particular Stock,

To each Man's particular Gain or Loss.

E X A M P L E S.

Ex. I. Three Merchants put in Money together, *A*, *B*, and *C*. *A* put in L. 20. *B* put in L. 30. *C* put in L. 40. they gained L. 180. What is each Man's Part of the Gain?

If you consider the Observation belonging to the Question in the Rule of Three, you may contract your Work in this, and the like Questions, as was there intimated; for if you divide your second Number 180. by your first Number 90. and by the Quotient 2. multiplying *A*, *B* and *C*'s Stock, *viz.* 20, 30, 40. produceth 40, 60, 80. *A*, *B*, and *C*'s Gain.

N

L.

L.	90)	180	(2	L.	20	30
A 20		180		2	2	
B 30		<u> </u>		<u> </u>	<u> </u>	
C 40				40	A's Gain.	60 B's Gain.
<u> </u>						
		A 40 Gain.				
L. 90 Gain.	L. 180	B 60 Gain.		40		
		C 80 Gain.		2		
		<u> </u>		<u> </u>		
		180, Proof.		80	C's Gain.	

But if you consider this Question, the Answer may more quickly be found yet; for seeing the Gain was double to the whole Stock, each Man's Gain will be double to his Stock. And such Considerations as these may be of good Use in many Cases.

Ex. II. Four Partners, *viz.* *A, B, C,* and *D,* between them built a Ship, which cost £. 1730, of which *A* paid 346 £. *B* 519 £. *C* 692 £. and *D* 173 £. and her Freight, for a certain Voyage, is 370 £. which is due to the Owners or Builders, I demand each Man's Share therein, according to his Charge in building her ?

First. I find the Sum of all their Stocks, by adding them together, viz. 346 L. 519 L. 692 L. and 173 L. which are 1730 L. Then according to this Rule, I say *first*, If 1730 L. (the Sum of their Stocks) require 370 L. the Freight, how much will 346 L. (the Stock of A.) require?

L.
A. 346
B. 519
C. 692
D. 173

L. 1730

L.

	L.	L.	L.
I. If	1730	370	346
			370
			L.

173.0)	12802.0	(74
	1211	

692

692

	L.	L.	L.
II. If	1730	370	519
			370
			L.

173.0)	19203.0	(111
	173	

190

173

173

173

	L.	L.	L.
III. If	1730	370	692
			370
			L.

173.0)	25504.0	(148
	173	

830

692

1384

1384

	L.	L.	L.
IV. If	1730	370	173
			370
			L.

173.0)	6401.0	(37
	519	

1211

1211

To prove this Example, and the Rule of *single Fellowship*, -add each Man's particular Gain or Loss together, and if the total Sum is equal to the general Gain or Loss, then is the Work rightly performed, but otherwise it is erroneous. For if you add 74 L. A's Share, 111 L. B's Share, 148 L. C's Share, and 37 L. D's Share, together, you will find, that the whole amounts to 370 L. the Freight, and therefore the Work is right.

If, in finding out the particular Shares of the several Partners, any Thing remain after Division is ended, such Remainders must be added together (they being all Fractions of the same Denomination) and their Sum divided by the common Divisor, in each Question (*viz.* the total Stock) and the Quotient added to the particular Gains, and then if the total Sum is equal to the total Gain, the Work is right, otherwise not.

Double FELLOWSHIP.

IT is called *double Fellowship* when their Gains are different, not only in respect of their Stocks, but in respect of the Time of Continuance in Company; and that you may work any such Question, observe this general *Rule*.

As the total Sum of the Products of each Man's Money and Time, is to the total Gain; so the particular Product of each Man's Money and Time, is to each Man's particular Gain.

E X A M P L E.

Three Persons make a joint Stock, *A.* puts in 400 Pieces of Holland, each containing 96 Yards, at 5 *sh.* 6 *d.* per Ell *Flemish*, for 5 Months, *B.* 600 Guineas for 8 Months, and *C.* 1800 *L.* for 4 Months, but at 3 Months End takes out 800 *L.* They gain in all 1000 *L.* how much is each of their Shares?

96	Yards.
400	Pieces of Holland.
38400	Total Number of Yards.
4	
3 - 153600	
51200	Number of FLEMISH Ells.
66	Pence in 5 <i>sh.</i> 6 <i>d.</i>
3379200	Total Number of Pence.
5	
16896000	The Sum of the Product of the Money and Time of <i>A.</i> }
A.	16896000
B.	1209600
C.	1152000

252	Pence in a Guinea.
600	Number of Guineas.
151200	Pence in the whole.
8.	
1209600	The Sum of the Product of the Money and Time of <i>B.</i> }
240	Pence in a Pound.
1800	Number of Pounds.
432000	Pence in the whole.
4	
1728000	
192000	Pence in 800 <i>L.</i> taken out in 3 Months.
576000	This subtracted from 1728000 gives
1152000	The Sum of the Product of the Money and Time of <i>C.</i> }

19257600 The Total Sum of all the Products.

240

1000

240000 Pence in a thousand Pounds.

I. If $\frac{19257600}{(12)} \frac{240000}{(12)} \frac{16896000}{(12)}$

2. $\frac{1604800}{(12)} \frac{20000}{(12)} \frac{1408000}{(12)}$

$\frac{802400}{(12)} \frac{10000}{(12)} \frac{7040000}{(12)} (877$

$\frac{64192}{(12)}$

$\frac{62080}{(12)}$

$\frac{56168}{(12)}$

$\frac{59120}{(12)}$

$\frac{56168}{(12)}$

$\frac{2952}{(12)}$

II. If $\frac{19257600}{(12)} \frac{240000}{(12)} \frac{1209600}{(12)}$

2. $\frac{1604800}{(12)} \frac{20000}{(12)} \frac{100800}{(12)}$

$\frac{802400}{(12)} \frac{10000}{(12)} \frac{504000}{(12)} (62$

$\frac{48144}{(12)}$

$\frac{22360}{(12)}$

$\frac{16048}{(12)}$

$\frac{6512}{(12)}$

$\frac{6584}{(12)}$

$\frac{2952}{(12)}$

$\frac{16048}{(12)} (2$

$\frac{16048}{(12)}$

III. If $\frac{19257600}{(12)} \frac{240000}{(12)} \frac{1152000}{(12)}$

2. $\frac{1604800}{(12)} \frac{20000}{(12)} \frac{96000}{(12)}$

$\frac{802400}{(12)} \frac{10000}{(12)} \frac{480000}{(12)} (59$

$\frac{40120}{(12)}$

$\frac{78800}{(12)}$

$\frac{72216}{(12)}$

$\frac{6584}{(12)}$

L.

A's Share is 877

B's Share is 62

C's Share is 59

Remainders 2

1000 L.

The whole Gain.

By having taken the 12th Part of my first, second and third Numbers, and again the Half of that Quote, the Work is wonderfully contracted, in respect of what it would have been, to have wrought this Example after the common Way; and in Place of Pence, that the Quotients would have produced, *viz.* 210568 for A's Share, 15074 for B's Share, and 14356 for C's Share, which behoved to be divided by 12 to turn the same into Shillings, and the one half of those Shillings taken to bring them into Pounds; I say, by having taken

taken $\frac{1}{2}$ Part of my first, second and third Numbers, and again $\frac{1}{2}$ of those Quotients, brings all the Quotients into Pounds at once. In the long Way, A's Share is 877 L. 7 *sh.* 4 *d.* B's 62 L. 16 *sh.* 2 *d.* and C's 59 L. 16 *sh.* 4 *d.* which added together, with 2 *d.* got out of the first, second and third Remainders, *viz.* 56832, 149376, and 178944, makes up the 1000 L. of Gain exactly, which proves the Work to be rightly performed.

Note. There must be three Cyphers cut off the Dividend, for the two Cyphers in the Divisor, because to bring Shillings into Pounds, they must be divided by 20.

And if the Division of this Example, or that in the *double Rule of Three inverse*, should seem to be too difficult, you may make a Table for your Divisors, according to the Directions given in *Page 70*.

If a Loss be sustained instead of Gain among Partners, every Man's Share to be born in the Loss, is to be found after the same Method, as their Gain, whether their Stocks be for equal or unequal Time.

(21)

(21)

(21)

RULES OF PRACTICE.

These Rules are so called, from their frequent Use and Brevity, by which Merchants compendiously cast up the Price of their Goods and Commodities. But they will be best explained by Examples, and require the perfect Knowledge of the aliquot or even Parts of a Shilling, and of a Pound, which is not only sufficiently demonstrated in *Page 9*. but likewise we know, by the said Table of the Division of a Pound *Sterling*, that 6 *d.* 4 *d.* 3 *d.* 2 *d.* &c. is $\frac{1}{20}$ of a Pound.

These Rules are divided into two Chapters, and each Chapter is subdivided into four Sections.

CHAPTER I.

§ 1.

IN this first Section are Examples, when the Price of the Integer is Farthings, Pence and Farthings, Shillings and Farthings, or Shillings, Pence, and Farthings.

1st. When the Divisor is 960, the first Remainder will be Farthings, and the second Remainder half Crowns, which, being added to the first Remainder, gives the Number of Shillings, Pence, and Farthings, remaining in the whole.

2^{dly}. When the Divisor is 320, the first Remainder will be so many times 3 Farthings, and the second Remainder Crowns.

3^{dly}. When the Divisor is 192, the first Remainder will be so many times 5 Farthings, the 2^d Remainder so many 15 Pence, and the last Remainder 10 Shillings.

4^{thly}. When the Divisor is 64, the first Remainder will be so many times 15 Farthings, or 3 *d.* $\frac{1}{2}$, and the 2^d Remainder Half-crowns.

EXAMPLES.

Needles at one Farthing per Piece.

$$\begin{array}{r} 12.0-453.6 \\ \underline{\quad\quad\quad} \\ 8-37 \\ \underline{\quad\quad} \\ 4\ 14\ 6 \end{array}$$

This *Ex.* at 1 *q.* being $\frac{1}{2}$ of a Pound, could not be wrought with fewer Figures, if the Integers or Quantity of Needles had not been such a Number, as that the 12th Part of both it and the Divisor 960, could be taken, which brings it to $\frac{1}{12}$, then by taking $\frac{1}{2}$ of this last again, you see the Dividend is only 189, and the Divisor 40, by which Means 'tis shortned into one half of the Figures, therefore all the Examples following, that will admit of any such Abbreviation, may be done with great Expedition.

To find the Remainder, the Figure pointed off is so many Far. which in this *Ex.* are 6, or 1 *d.* $\frac{1}{2}$, and what remains in the Division by 12, are so many Tens of Farthings, or 2 *d.* $\frac{1}{2}$, being 9, which is 1 *s.* 10 *d.*, this with the 3 Half-pence, gives 2 *sh.* for the first Remainder.

In the 2^d Division by 8, there remains 5, which are so many Half-crowns, 12 *sh.* 6; or this added to the first Remainder is 14 *sh.* 6: So that 4536 Needles, or the same Number of any other Thing, at 1 Far. is worth L. 4 14 6.

Vide §. 3. for finding out the Value of the same *Ex.* contracted.

Tennis Balls at 2 Farthings.

$$8.0-864.1$$

$$\begin{array}{r} -4-108 \\ \underline{\quad\quad} \end{array}$$

$$27\ 0\ 0\ 3$$

Oat-cakes at 1 d. $\frac{1}{4}$

12-3470

8- 289

2- 36

18 1 5 2

12-1735

8- 144

18 1 5 2

Account for each one remaining in the first Division 5 Far. consequently the Remainder 2, is 2 d. $\frac{1}{4}$.

Each one in the 2d Division is 15 Pence, this added to the other, is 1 *sh.* 5 2. If any thing had remain'd in the 3d Division, it would have been 10 Shillings.

Vide § 2. For the Value of the same *Ex.* contracted.

Double Dutch Stivers at 1 d. $\frac{1}{4}$

3987

7

12.0-2790.9

8- 232

29 1 5 1

1329

7

8.0-930.3

4- 116

29 1 5 1

In the contracted *Ex.* the Figure 3, pointed off, is so many times

3 Farth. which is 2 d. $\frac{1}{4}$, and each one remaining in the Division by 8, are so many times 7 d., being 2, equal to 1 *sh.* 3 d.; this, with the 2 d. $\frac{1}{4}$, gives *sh.* 1, 5 1 for the 1st Remainder.

If any had remain'd in the 2d Division, account 5 *sh.* for each, which must have been added to the first Remainder.

Dozen of Eels, at 2 d. $\frac{1}{4}$

3789

3

8.0-1136.7

4- 142

35 10 5 1

Dozen of Pearmaines at 2 d. $\frac{1}{4}$

9631

11

12.0-10594.1

2- 882

110 7 1 1

Dozen

wo **Dozen of Pippins at 3 d. 1/2** **Pints of Oyl at 4 d. 1/2**

6542	3271	8855
12.0-3504.6	12.0-4252.3	12.0-15053.5
8- 708	4- 354	8- 1254
88 11 9 2	88 11 9 2	156 16 1 3

Vide § 2. for the Value of the same *Ex.* contracted. **Faggots of Wood at 4 d. 1/2**

Lib. of Salt Fish at 3 d. 1/2	3891	1297
	19	19
8- 3455	12.0-7392.9	8.0-2464.3
8- 431	8- 616	4- 308
53 19 8 1	77 0 2 1	77 0 2 1

Account for each one remaining in the first Division 15 qrs. or 3 d. 1/2, by which Means the Remainder 7 is *sh.* 2 2 1.

Account for each one remaining in the second Division half a Crown, whereby the Rem. 7 is *sh.* 17 6. which added to the first Remainder, is *sh.* 19 8 1.

lb. of black Sope at 5 d. 1/2	8746	4373
	7	7
8.0-6122.2	8.0-3061.1	
4- 765	2- 382	
191 6 4 2	191 6 4 2	

O The

The foregoing Examples may serve for a thorough Knowledge how to work any other Example belonging to this Section; and therefore I shall only give you the fixed Multipliers and Divisors that you are to make use of in working any Question or given Number, that ends with one or three Farthings.

Price	Mult.	Divis.	Price	Mult.	Div.	Price	Mult.	Div.
d. 5 3	23	960	1 10 3	91	960	3 3 3	53	320
6 1	25	960	1 11 1	31	320	3 4 1	161	960
6 3	9	320	1 11 3	95	960	3 4 3	163	960
7 1	29	960	2 0 1	97	960	3 5 1	11	64
7 3	31	960	2 0 3	33	320	3 5 3	167	960
8 1	11	320	2 1 1	101	960	3 6 1	169	960
8 3	35	960	2 1 3	103	960	3 6 3	57	320
9 1	37	960	2 2 1	35	320	3 7 1	173	960
9 3	13	320	2 2 3	107	960	3 7 3	175	960
10 1	41	960	2 3 1	109	960	3 8 1	59	320
10 3	43	960	2 3 3	37	320	3 8 3	179	960
11 1	3	64	2 4 1	113	960	3 9 1	181	960
11 3	47	960	2 4 3	115	960	3 9 3	61	320
1 0 1	49	960	2 5 1	39	320	3 10 1	185	960
1 0 3	17	320	2 5 3	119	960	3 10 3	187	960
1 1 1	53	960	2 6 1	121	960	3 11 1	63	320
1 1 3	55	960	2 6 3	41	320	3 11 3	191	960
1 2 1	19	320	2 7 1	125	960	4 0 1	193	960
1 2 3	59	960	2 7 3	127	960	4 0 3	13	64
1 3 1	61	960	2 8 1	43	320	4 1 1	197	960
1 3 3	21	320	2 8 3	131	960	4 1 3	199	960
1 4 1	65	960	2 9 1	133	960	4 2 1	67	320
1 4 3	67	960	2 9 3	9	64	4 2 3	203	960
1 5 1	23	320	2 10 1	137	960	4 3 1	205	960
1 5 3	71	960	2 10 3	139	960	4 3 3	69	320
1 6 1	73	960	2 11 1	47	320	4 4 1	209	960
1 6 3	5	64	2 11 3	143	960	4 4 3	211	960
1 7 1	77	960	3 0 1	145	960	4 5 1	71	320
1 7 3	79	960	3 0 3	49	320	4 5 3	215	960
1 8 1	27	320	3 1 1	149	960	4 6 1	217	960
1 8 3	83	960	3 1 3	151	960	4 6 3	73	320
1 9 1	85	960	3 2 1	51	320	4 7 1	221	960
1 9 3	29	320	3 2 2	155	960	4 7 3	223	960
1 10 1	89	960	3 3 1	157	960	4 8 1	15	64

Price

	Price	Mult.	Div.
4 8 3	127	960	
4 9 1	229	960	
4 9 3	77	320	
4 10 1	233	960	
4 10 3	235	960	
4 11 1	79	320	
4 11 3	239	960	
5 0 1	241	960	
5 0 3	81	320	
5 1 1	245	960	
5 1 3	247	960	
5 2 1	83	320	
5 2 3	251	960	
5 3 1	253	960	
5 3 3	17	64	
5 4 1	257	960	
5 4 3	259	960	
5 5 1	87	320	
5 5 3	263	960	
5 6 1	265	960	
5 6 3	89	320	
5 7 1	269	960	
5 7 3	271	960	
5 8 1	91	320	
5 8 3	275	960	
5 9 1	277	960	
5 9 3	93	320	
5 10 1	281	960	
5 10 3	283	960	
5 11 1	19	64	
5 11 3	287	960	
6 0 1	289	960	
6 0 3	97	320	
6 1 1	293	960	
6 1 3	295	960	
6 2 1	99	320	
6 2 3	299	960	
6 3 1	301	960	
6 3 3	101	320	
6 4 1	305	960	
6 4 3	307	960	
6 5 1	103	320	
6 5 3	311	960	

	Price	Mult.	Div.
6 6 1	313	960	
6 6 3	21	64	
6 7 1	317	960	
6 7 3	319	960	
6 8 1	107	320	
6 8 3	323	960	
6 9 1	325	960	
6 9 3	109	320	
6 10 1	329	960	
6 10 3	331	960	
6 11 1	111	320	
6 11 3	335	960	
7 0 1	337	960	
7 0 3	113	320	
7 1 1	341	960	
7 1 3	343	960	
7 2 1	23	64	
7 2 3	347	960	
7 3 1	349	960	
7 3 3	117	320	
7 4 1	353	960	
7 4 3	355	960	
7 5 1	119	320	
7 5 3	359	960	
7 6 1	361	960	
7 6 3	121	320	
7 7 1	365	960	
7 7 3	367	960	
7 8 1	123	320	
7 8 3	371	960	
7 9 1	373	960	
7 9 3	25	64	
7 10 1	377	960	
7 10 3	379	960	
7 11 1	127	320	
7 11 3	383	960	
8 0 1	385	960	
8 0 3	129	320	
8 1 1	389	960	
8 1 3	391	960	
8 2 1	131	320	
8 2 3	395	960	
8 3 1	397	960	

	Price	Mult.	Div.
8 3 3	133	320	
8 4 1	401	960	
8 4 3	403	960	
8 5 1	27	64	
8 5 3	407	960	
8 6 1	409	960	
8 6 3	137	320	
8 7 1	413	960	
8 7 3	415	960	
8 8 1	139	320	
8 8 3	419	960	
8 9 1	421	960	
8 9 3	141	320	
8 10 1	425	960	
8 10 3	427	960	
8 11 1	143	320	
8 11 3	431	960	
9 0 1	433	960	
9 0 3	29	64	
9 1 1	437	960	
9 1 3	439	960	
9 2 1	147	320	
9 2 3	443	960	
9 3 1	445	960	
9 3 3	149	320	
9 4 1	449	960	
9 4 3	451	960	
9 5 1	151	320	
9 5 3	455	960	
9 6 1	457	960	
9 6 3	153	320	
9 7 1	461	960	
9 7 3	463	960	
9 8 1	31	64	
9 8 3	467	960	
9 9 1	469	960	
9 9 3	157	320	
9 10 1	473	960	
9 10 3	475	960	
9 11 1	159	320	
9 11 3	479	960	
10 0 1	481	960	
10 0 3	161	320	

Price	Mult.	Div.
10 1 1	483	960
10 1 3	487	960
10 2 1	163	320
10 2 3	491	960
10 3 1	493	960
10 3 3	33	64
10 4 1	497	960
10 4 3	499	960
10 5 1	167	320
10 5 3	503	960
10 6 1	505	960
10 6 3	169	320
10 7 1	509	960
10 7 3	511	960
10 8 1	171	320
10 8 3	515	960
10 9 1	517	960
10 9 3	173	320
10 10 1	521	960
10 10 3	523	960
10 11 1	35	64
10 11 3	527	960
11 0 1	529	960
11 0 3	177	320
11 1 1	533	960
11 1 3	535	960
11 2 1	179	320
11 2 3	539	960
11 3 1	541	960
11 3 3	181	320
11 4 1	545	960
11 4 3	547	960
11 5 1	183	320
11 5 3	551	960
11 6 1	553	960
11 6 3	37	64
11 7 1	557	960

Price	Mult.	Div.
11 7 3	559	960
11 8 1	187	320
11 8 3	563	960
11 9 1	565	960
11 9 3	189	320
11 10 1	569	960
11 10 3	571	960
11 11 1	191	320
11 11 3	575	960
12 0 1	577	960
12 0 3	193	320
12 1 1	581	960
12 1 3	583	960
12 2 1	39	64
12 2 3	587	960
12 3 1	589	960
12 3 3	197	320
12 4 1	593	960
12 4 3	595	960
12 5 1	199	320
12 5 3	599	960
12 6 1	601	960
12 6 3	201	320
12 7 1	605	960
12 7 3	607	960
12 8 1	203	320
12 8 3	611	960
12 9 1	613	960
12 9 3	41	64
12 10 1	617	960
12 10 3	619	960
12 11 1	207	320
12 11 3	623	960
13 0 1	625	960
13 0 3	209	320
13 1 1	629	960
13 1 3	631	960

Price	Mult.	Div.
13 2 1	211	320
13 2 3	635	960
13 3 1	637	960
13 3 3	213	320
13 4 1	641	960
13 4 3	643	960
13 5 1	43	64
13 5 3	647	960
13 6 1	649	960
13 6 3	217	320
13 7 1	653	960
13 7 3	655	960
13 8 1	219	320
13 8 3	659	960
13 9 1	661	960
13 9 3	221	320
13 10 1	665	960
13 10 3	667	960
13 11 1	223	320
13 11 3	671	960
14 0 1	673	960
14 0 3	45	64
14 1 1	677	960
14 1 3	679	960
14 2 1	227	320
14 2 3	683	960
14 3 1	685	960
14 3 3	229	320
14 4 1	689	960
14 4 3	691	960
14 5 1	231	320
14 5 3	695	960
14 6 1	697	960
14 6 3	233	320
14 7 1	701	960
14 7 3	703	960
14 8 1	47	64

Price

Price	Mult.	Div.	Price	Mult.	Div.	Price	Mult.	Div.
14 8 3	707	960	16 2 1	259	320	17 8 1	283	320
14 9 1	709	960	16 2 3	779	960	17 8 3	851	960
14 9 3	237	320	16 3 1	781	960	17 9 1	853	960
14 10 1	713	960	16 3 3	261	320	17 9 3	57	64
14 10 3	715	960	16 4 1	785	960	17 10 1	857	960
14 11 1	239	320	16 4 3	787	960	17 10 3	859	960
14 11 3	719	960	16 5 1	263	320	17 11 1	287	320
15 0 1	721	960	16 5 3	791	960	17 11 3	863	960
15 0 3	241	320	16 6 1	793	960	18 0 1	865	960
15 1 1	725	960	16 6 3	53	64	18 0 3	289	320
15 1 3	727	960	16 7 1	797	960	18 1 1	869	960
15 2 1	243	320	16 7 3	799	960	18 1 3	871	960
15 2 3	731	960	16 8 1	267	320	18 2 1	291	320
15 3 1	733	960	16 8 3	803	960	18 2 3	875	960
15 3 3	49	64	16 9 1	805	960	18 3 1	877	960
15 4 1	737	960	16 9 3	269	320	18 3 3	293	320
15 4 3	739	960	16 10 1	809	960	18 4 1	881	960
15 5 1	247	320	16 10 3	811	960	18 4 3	883	960
15 5 3	743	960	16 11 1	271	320	18 5 1	59	64
15 6 1	745	960	16 11 3	815	960	18 5 3	887	960
15 6 3	249	320	17 0 1	817	960	18 6 1	889	960
15 7 1	749	960	17 0 3	273	320	18 6 3	297	320
15 7 3	751	960	17 1 1	821	960	18 7 1	893	960
15 8 1	251	320	17 1 3	823	960	18 7 3	895	960
15 8 3	755	960	17 2 1	55	64	18 8 1	299	320
15 9 1	757	960	17 2 3	827	960	18 8 3	899	960
15 9 3	253	320	17 3 1	829	960	18 9 1	901	960
15 10 1	761	960	17 3 3	277	320	18 9 3	301	320
15 10 3	763	960	17 4 1	833	960	18 10 1	905	960
15 11 1	51	64	17 4 3	835	960	18 10 3	907	960
15 11 3	767	960	17 5 1	279	320	18 11 1	303	320
16 0 1	769	960	17 5 3	839	960	18 11 3	911	960
16 0 3	257	320	17 6 1	841	960	19 0 1	913	960
16 1 1	773	960	17 6 3	281	320	19 0 3	61	64
16 1 3	775	960	17 7 1	845	960	19 1 1	917	960
			17 7 3	847	960	19 1 3	919	960

Price

Price	Mult.	Div.	Price	Mult.	Div.	Price	Mult.	Div.
19 2 1	307	320	19 5 1	311	320	19 8 1	63	64
19 2 3	523	960	19 5 3	935	960	19 8 3	947	960
19 3 1	925	960	19 6 1	937	960	19 9 1	949	960
19 3 3	309	320	19 6 3	313	320	19 9 3	317	320
19 4 1	929	960	19 7 1	941	960	19 10 1	953	960
19 4 3	931	960	19 7 3	943	960	19 10 3	955	960

Here I shall end this first Section with the two following Examples at large.

lb. of fine Pekoe Tea at	19 lb. C. Wt. of French Prunes at
11 $\frac{1}{4}$	11 $\frac{3}{4}$
832	493
319	959
8. 0. 26540.8	12. 0. 47277.7
4. 3317	8. 3939
829 8	492 9 6

In this Example of Prunes, 'tis impossible to bring it into fewer Figures or in less Room, because neither the Numerator or Multiplier 959, (the Number of Farthings contained in 19 lb. 11 d. 3 qrs. the Price of one Hundred of the 493 C. Wt. of French Prunes) nor the Denominator or Divisor 960, the Farthings contained in a Pound Sterling, can be abbreviated, or brought into lower Terms.

But for this Example of Pekoe Tea, as 19 lb. 11 d. $\frac{1}{4}$ makes 957 Farthings, 'tis but taking $\frac{2}{3}$ of the same, and $\frac{1}{3}$ of 960, then my Multiplier becomes 319, in place of 957, and my Divisor 320, in place of 960: And further 'tis observable, that since the given Number of Pounds of Tea, viz. 832, admits of being abbreviated, by taking $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, &c. thereof, the Divisor will admit of the same: Therefore I say, by taking $\frac{1}{2}$ of 832, and 320, they become 416; then taking $\frac{1}{4}$ of 416 and 40, they become 104, so if I multiply 319, my former Multiplier, by 26, the 32.

Part

Part of my given Number 832, the Product would be 8294, which 8294 being divided by 10, the 32 Part of my Divisor 320, minding to point off the Figure 4 to the right, and doubling it for Shillings, since the Cypher in 10 is pointed off, it gives the Answer, 829 L. 80 *lb.* as being the Price of the 832 *lb.* Wt. of Tea, at 19 *sh.* 11 *d.* $\frac{1}{2}$ per *lb.* This carefully observed will render thousands of Examples very easy.

S E C T. II.

In this second Section are Examples, when the Price of the Integer is Half-pence, Pence and Half pence, or Shillings, Pence and Half-pence.

Note. When the Divisor is 480, I divide by 120, to bring the first Quotient into Crowns, and the Remainder will be all Half-pence. Then I divide those Crowns by 4, to bring them into Pounds, and the second Remainder will be Crowns, which being joined to the first Remainder, gives the Number of Shillings, Pence and Half-pence remaining in the whole.

2^{dly}. When the Divisor is 160, I divide by 80, to bring the first Quotient into so many Times *sh.* 10, and the Remainder will be all 3 Half-pennies. Then I take the half of those 10 Shillings to bring them into Pounds, and if 1 remain, it is *sh.* 10, which must be joined to the first Remainder, to know what remains in all.

3^{dly}. When the Divisor is 96, I divide by 12, to bring the first Quote into so many $\frac{1}{2}$ Crowns, and the first Remainder are two Pence Half-pennies. Again, I divide that Quote by 8, to bring those Half-crowns into Pounds, and the second Remainder will be Half-crowns, which must be added to the first Remainder.

4^{thly}. When the Divisor is 32, I divide by 8, to bring the first Quotient into Crowns, and the first Remainder are so many 7 Pence Half-pennies. Then I go on with the rest of the Work, according to the Directions given, when the Divisor was 480.

EX-

E X A M P L E S.

Sheets of Paper at 2 Farth.

$$\begin{array}{r}
 12.0 - 279.5 \\
 \hline
 4 - \quad 23 \\
 \hline
 5 \ 16 \ 5 \ 2
 \end{array}$$

The first Remainder 35, being so many Half-pence, is $\text{sh. } 1 \ 5 \frac{1}{2}$; or thus, after you have doted off the Figure to the Right-hand of the Dividend, for the Cypher in the Divisor, and divides by 12, account 5 Pence for every one that remains, which in the above Example is 3, being 3 five Pences, or 1 $\text{sh. } 3 \text{ d.}$ and the 5 to the Right-hand of the Dot, is 5 Half-pence, or 2 $\text{d. } \frac{1}{2}$, this added to the $\text{sh. } 1 \ 3$ make $\text{sh. } 1 \ 5 \frac{1}{2}$ for the first Remainder, as before.

The second Remainder is 3 Crowns, or $\text{sh. } 15$, which being added to the $\text{sh. } 1 \ 3 \ 2$, that remained in the first Division, shews that $\text{sh. } 16 \ 5 \ 2$ remains in the whole.

Grains of Gold at 1 $\text{d. } \frac{1}{2}$

$$\begin{array}{r}
 8.0 - 246.9 \\
 \hline
 2 - \quad 30 \\
 \hline
 15 \ 8 \ 7 \ 2
 \end{array}$$

Reckon $\text{sh. } 1 \ 3$ for every 1 that remains in the first Division, after having divided by 8, which in the above Example is 6, being 6 Times $\text{sh. } 1 \ 3$, or $\text{sh. } 7 \ 6$, and for the 9 upon the Right-hand of the Dot, they are 9 three Half-pence, or $\text{sh. } 1 \ 1 \frac{1}{2}$, this added to the $\text{sh. } 7 \ 6$ makes $\text{sh. } 8 \ 7 \frac{1}{2}$ for the first Remainder.

In the second Division there is no Remainder, but if 1 had remained, it would have been an Angel, or $\text{sh. } 10$, and must have been joined to the first Remainder.

Dozen of Eggs at 2 $\text{d. } \frac{1}{2}$.

$$\begin{array}{r}
 12. \quad 3587 \\
 \hline
 8. \quad 298 \\
 \hline
 37 \ 7 \ 3 \ 2
 \end{array}$$

The first Remainder 11, being so many 2 $\text{d. } \frac{1}{2}$, is $\text{sh. } 2 \ 3 \frac{1}{2}$. The second Remainder is 2 Half-crowns, or $\text{sh. } 5$, which being added to the $\text{sh. } 2 \ 3 \frac{1}{2}$, remaining in the first Division, shews that $\text{sh. } 7 \ 3$ remains in the whole.

lb. Wt. of Iron at 3 d. $\frac{1}{2}$.

6395
700

12.0 - 4476.5

4 - 373

93 5 2 2

Bushels of Bran at 4 d. $\frac{1}{2}$.

4329
3

8.0 - 1298.7

2 - 162

81 3 4 2

Hundred of Nails at 5 d. $\frac{1}{2}$.

3219
11

12.0 - 3540.9

4 - 295

173 15 4 2

Nests of Crucibles at 6 d. $\frac{1}{2}$.

7113
13

12.0 - 9246.9

4 - 770

192 12 10 2

Turkish Zuuz at 7 d. $\frac{1}{2}$.

8 - 6215

4 - 776

194 4 4 2

The Remainder of the first Division 7, being so many 7 Pence Half-pennies, is *lb.* 4 4 2.

If any had remained in the second Division, they being Crowns were to be added to the first Remainder.

84470

834

P Pairs

Pairs of Rabbits at $8\frac{1}{2} d.$

$$\begin{array}{r}
 2105 \\
 17 \\
 \hline
 12.0 - 3578.5 \\
 \hline
 4 - 298 \\
 \hline
 74 \quad 11 \quad 0 \quad 2
 \end{array}$$

Hens at $9\frac{1}{2} d.$

$$\begin{array}{r}
 879 \\
 19 \\
 \hline
 12.0 - 1670.1 \\
 \hline
 4 - 139 \\
 \hline
 34 \quad 15 \quad 10 \quad 2
 \end{array}$$

Lobsters at $10\frac{1}{2} d.$

$$\begin{array}{r}
 5349 \\
 7 \\
 \hline
 8.0 - 3744.3 \\
 \hline
 2 - 468 \\
 \hline
 234 \quad 0 \quad 4 \quad 2
 \end{array}$$

Thous. and Matches at $11\frac{1}{2} d.$

$$\begin{array}{r}
 8107 \\
 23 \\
 \hline
 12.0 - 18646.1 \\
 \hline
 4 - 1553 \\
 \hline
 388 \quad 9 \quad 2 \quad 2
 \end{array}$$

Dozen of Larks at $\text{sh. } 1 \text{ } 0\frac{1}{2}$

$$\begin{array}{r}
 4597 \\
 5 \\
 \hline
 12 - 22985 \\
 \hline
 8 - 1915 \\
 \hline
 239 \quad 8 \quad 6 \quad 2
 \end{array}$$

Pecks of Flour at $\text{sh. } 1 \text{ } 1\frac{1}{2} d.$

$$\begin{array}{r}
 4285 \\
 9 \\
 \hline
 8.0 - 3856.5 \\
 \hline
 2 - 482 \\
 \hline
 241 \quad 0 \quad 7 \quad 2
 \end{array}$$

Ounces

(115)

Ounces of Euphorbium at $\text{lb. } 1 \frac{2}{3}$

	6979	
	29	
12.0	<u>20239.1</u>	
4.	<u>1686</u>	
	421	12 11 2

Lib. of Almonds at $\text{lb. } 1 \frac{3}{5}$

	7191	
	31	
12.0	<u>22292.1</u>	
4.	<u>1857</u>	
	464	8 4 2

Ditto Snuff at $\text{lb. } 1 \frac{4}{5}$

	874	8090	
	71	11	
8.0	<u>2218</u>	<u>8899.0</u>	
2.	<u>101</u>	<u>1112</u>	
		556	3 9

Lib. of Crim-tartar at $\text{lb. } 1 \frac{5}{8}$

	4793	
	14	7
12.	<u>33551</u>	
8.	<u>2795</u>	
	349	9 9 2

Quarts of Wine at $\text{lb. } 1 \frac{6}{5}$

	4932	
	37	
12.0	<u>18248.4</u>	
4.	<u>1520</u>	
	380	3 6

Chairs at $\text{lb. } 1 \frac{7}{8}$

	7963	
	13	
8.0	<u>10351.9</u>	
2.	<u>1293</u>	
	646	19 10 2
P 2		Chairs

Chair Frames at $\text{£} 1 \text{ } 8\frac{1}{2}$

$$\begin{array}{r}
 3097 \\
 41 \\
 \hline
 12.0 - 12697.7 \\
 \hline
 4 - 1058 \\
 \hline
 264 \text{ } 10 \text{ } 8 \text{ } 2
 \end{array}$$

Dozen of Chickens at $\text{£} 1 \text{ } 9\frac{1}{2}$

$$\begin{array}{r}
 3794 \\
 43 \\
 \hline
 12.0 - 16314.2 \\
 \hline
 4 - 1359 \\
 \hline
 339 \text{ } 17 \text{ } 7
 \end{array}$$

Yards of Drugget at $\text{£} 1 \text{ } 10\frac{1}{2}$

$$\begin{array}{r}
 9271 \\
 3 \\
 \hline
 8 - 27813 \\
 \hline
 4 - 3476 \\
 \hline
 869 \text{ } 3 \text{ } 1 \text{ } 2
 \end{array}$$

Lib. of Cucumber Seed at $\text{£} 1 \text{ } 11\frac{1}{2}$

$$\begin{array}{r}
 4987 \\
 47 \\
 \hline
 12.0 - 23438.9 \\
 \hline
 4 - 1953 \\
 \hline
 488 \text{ } 6 \text{ } 2 \text{ } 2
 \end{array}$$

Lib. of Blue at $\text{£} 2 \text{ } 0\frac{1}{2}$

$$\begin{array}{r}
 321 \\
 49 \\
 \hline
 12.0 - 1572.9 \\
 \hline
 4 - 131 \\
 \hline
 32 \text{ } 15 \text{ } 4 \text{ } 2
 \end{array}$$

Geese at $\text{£} 2 \text{ } 1\frac{1}{2}$

$$\begin{array}{r}
 478 \\
 17 \\
 \hline
 8.0 - 812.6 \\
 \hline
 2 - 101 \\
 \hline
 50 \text{ } 15 \text{ } 9
 \end{array}$$

Dozen

((8117))

Dozen of Mackrels at $\text{lb. } 2 \frac{1}{2}$ Lib. of Camomile Oyl at $\text{lb. } 2 \frac{1}{2}$

84795
1753

12.0 - 4213.5 - 0.51

4 - 20351

2' 7 11 251 87 15 7 2 2 4 40 53 4 9 2

Do. of Bath Metal Buttons at $\text{lb. } 2 \frac{3}{4}$ Yards of Hamburg Linen at $\text{lb. } 2 \frac{6}{7}$

87755
87 11

12 - 8305

8 - 692

2 0 7 201 86 10 2 2 2 7 81 86 15 11 2

Do. drinking Glaffes at $\text{lb. } 2 \frac{1}{2}$ Rackets at $\text{lb. } 2 \frac{7}{8}$

141
19

8.0 - 267.9 13

2 - 33 4

2 1 81 16 14 10 2

200435
81 59

12.0 - 22966.51

4 - 227 213 8

68342
610

12.0 - 4166.3

4 - 347

858 426
68 21

8.0 - 894.6 0.2

2 - 111 - 2

2 3 80 55 18 3

Dozen

Dozen

(118)

Dozen of Dogs Skins at $\$ 2.85$

704 695

97 13

12-00 9035

8-15 752

94 2 3 2

Yards of Calimanco at $\$ 2.95$

542 80

670

12.0 - 367 83

4- 306

768 12 7 2

Do. Black Gauze at $\$ 2.10$

024 476

18 23

8.0 040 1094 88

2- 111 136

68 8 6

Tarbots at $\$ 2.11$

208 49

87 71

12.0 - 6027.9

4- 12502

125 11 7 2

Salmons at $\$ 3.01$

208 73

11 73

12.0 - 4912.9

4- 409

102 7 0 2

Sturgeons at $\$ 3.15$

665

01 5

8- 3325

4- 415

103 18 1 12

Dozen

Dozen of Plovers at $\text{\pounds}$. 3 2 $\frac{1}{2}$

345
77
12.0 - 2656.5
4 - 221
55 6 10 2

Bushels of pale Malt at $\text{\pounds}$. 3 3 $\frac{1}{2}$

245
79
12.0 - 2235.5
4 - 186
46 11 5 2

Lyon Dollars at $\text{\pounds}$. 3 4 $\frac{1}{2}$

642
27
8.0 - 1733.4
2 - 216
108 9

Bushels of Clover Seed at $\text{\pounds}$. 3 5 $\frac{1}{2}$

459
83
12.0 - 3809.7
4 - 317
79 7 4 2

Hundred of Cat Skins at $\text{\pounds}$. 3 6 $\frac{1}{2}$

720
17
12 - 12240
8 - 1020
127 10

Do. Badgers at $\text{\pounds}$. 3 7 $\frac{1}{2}$

435
29
8.0 - 1261.5
2 - 157
78 16 10 3

Bushels

((1201))

Bushels of Hog-pease at $3 \text{ lb. } 8 \frac{1}{2}$ Brafts Candlesticks at $\text{lb. } 3 \text{ } 11 \frac{1}{2}$

524
89
—
12.0-4663.6
—
4- 388
—
97 3 2

654
19248
—
12- 12426
—
8- 1035
—
129-8 9

Hand Bellows at $\text{lb. } 3 \text{ } 9^1$

855
91
—
12.0- 7780.5
—
4- 648
—
162 1 10 2

Bushels of Flax-seed, at $\text{lb. } 4 \text{ } 0 \frac{1}{2}$.

532
9742
—
12.0-5160.4
—
4- 430
—
107-10 2

Cornelian Rings at $\text{lb. } 3 \text{ } 10 \frac{1}{2}$

543
31
—
8.0- 1683.3
—
2- 210
—
105 6 7 2

Ells of Alamode at $\text{lb. } 4 \text{ } 1 \frac{1}{2}$

837
3340
—
8.0-2762.1
—
2- 345
—
172-12 7 2
9 801 Pecks

Pecks of small white Sugar Pease C.Wt. of *Lignum Guaiacum* at $\text{lb. } 4 \text{ } 6\frac{1}{2}$
at $\text{lb. } 4 \text{ } 2 \frac{1}{2}$

563
101

12.0 - 5686.3

4 - 473

118 9 3 2

D^o. *Sandwich* Beans at $\text{lb. } 4 \text{ } 3\frac{1}{2}$

816
103

12.0 - 8713.8

4 - 726

181 10 9

Mexico Ryals at $\text{lb. } 4 \text{ } 4\frac{1}{2}$

498
7

8 - 3486

4 - 435

108 18 9

Hund. Artichoke Plants at $\text{lb. } 4 \text{ } 5\frac{1}{2}$

777
107

12.0 - 8313.9

4 - 692

173 4 1 2

333
109

12.0 - 3629.7

4 - 302

75 12 4 2

Ditto. of Whalebone at $\text{lb. } 4 \text{ } 7\frac{1}{2}$

627
37

8.0 - 2319.9

2 - 289

144 19 10 2

Dozen of *Spanish* Brooms at $\text{lb. } 4 \text{ } 8\frac{1}{2}$

627
113

12.0 - 7085.1

4 - 590

147 12 1 2

Shirts at $\text{lb. } 4 \text{ } 9\frac{1}{2}$

426
23

12 - 9798

8 - 816

102 1 3

Q Smocks

Smocks at *sb.* 4 10¹/₂

423

39

8.0 - 1649.7

2 - 206

103 2 1 2

Dozen of Peuther Salts at *sb.* 4 11¹/₂

948

119

12.0 - 11281.2

4 - 940

235 0 6

Frankfort Florins at *sb.* 5 0¹/₂

427

121

12.0 - 5166.7

4 - 430

107 12 9 2

Pairs of Slippers at *sb.* 5 1¹/₂

834

41

8.0 - 3419.4

2 - 427

213 14 3

(122)

Gallons of Hungary Water at *sb.* 5 2¹/₂

494

25

12 - 12350

8 - 1029

128 12 11

lb. of Bole Armoniack at *sb.* 5 3¹/₂

440

127

12.0 - 5588.0

4 - 465

116 8 4

Cane Chairs at *sb.* 5 4¹/₂

742

43

8.0 - 3190.6

2 - 398

199 8 3

Razors at *sb.* 5 5¹/₂

554

131

12.0 - 7257.4

4 - 604

151 3 11

Doz.

Dozen of Gimlets at $\text{sh. } 5 \text{ } 6\frac{1}{2}$

642
133

12.0 - 8538.6

4 - 711

177 17 9

Ditto Muirfowls at $\text{sh. } 5 \text{ } 7\frac{1}{2}$

927
9

8 - 8343

4 - 1042

260 14 4 2

Ditto Melons at $\text{sh. } 5 \text{ } 8\frac{1}{2}$

723
137

12.0 - 9705.1

4 - 808

202 3 9 2

$\text{lb. Turnep-feed at sh. } 5 \text{ } 9\frac{1}{2}$

742
139

12.0 - 10313.8

4 - 859

214 17 5

Q 2

Ditto Carrot-feed at $\text{sh. } 5 \text{ } 10\frac{1}{2}$

265
47

8.0 - 1245.5

2 - 155

77 16 10 2

Under-Petticoats at $\text{sh. } 5 \text{ } 11\frac{1}{2}$

932
143

12.0 - 13327.6

4 - 1110

277 13 2

Ditto Upper at $\text{sh. } 6 \text{ } 0\frac{1}{2}$

377
29

12 - 10933

8 - 911

113 17 8 2

Dozen of Coat Brushes at $\text{sh. } 6 \text{ } 1\frac{1}{2}$

472
49

8.0 - 2312.8

2 - 289

144 11

Pairs

(124)
Pairs of Ballances at $\text{lb. } 6 \frac{1}{2}$

132
149

12.0 - 1966.8

4 - 163

40 19 6

Gallons of Emetick Wine at $\text{lb. } 6 \frac{3}{4}$

445
151

12.0 - 6719.5

4 - 559

139 19 9 2

Silk-hoods at $\text{lb. } 6 \frac{1}{4}$

498
51

8.0 - 2539.8

2 - 317

158 14 4 2

Spontoons at $\text{lb. } 6 \frac{1}{2}$

734
31

12 - 22754

8 - 1896

237 0 5

Pairs of Shoes at $\text{lb. } 6 \frac{1}{2}$

437
157

12.0 - 6860.9

4 - 571

142 18 8 2

Silk Handkerchiefs at $\text{lb. } 6 \frac{1}{2}$

347
53

8.0 - 1839.1

2 - 229

114 18 10 2

Cymetars at $\text{lb. } 6 \frac{1}{2}$

234
161

12.0 - 3767.4

4 - 313

78 9 9

Cross Bows at $\text{lb. } 6 \frac{1}{2}$

437
163

12.0 - 7123.1

4 - 593

148 7 11 2
Long

(125)
Long Bows at *lb.* 6 10½

442
11

8 - 4862

4 - 607

151 18 9

Daggers at *lb.* 6 11½

888
167

12.0 - 14829.6

4 - 1235

308 19

Partizans at *lb.* 7 0½

424
169

12.0 - 7169.6

4 - 597

149 5 8

Javelins at *lb.* 7 1½

435
57

8.0 - 3279.8

2 - 409

204 19 4 2

Swords at *lb.* 7 2½

348
173

12.0 - 6020.4

4 - 501

125 8 6

Pistols at *lb.* 7 3½

453
35

12 - 15855

8 - 1321

165 3 1 2

Musquets at *lb.* 7 4½

445
59

8.0 - 2625.9

2 - 328

164 1 10 2

Musline Aprons at *lb.* 7 5½

724
179

12.0 - 12959.6

4 - 1079

269 19 10

Qu-

Quhons at *lb.* 7 6½

536

181

12.0 - 9701.6

4 - 808

202 2 4

Oz. of Womens Hair at *lb.* 7 7½

495

61

8.0 - 3019.5

2 - 377

188 14 4 2

Bushels of Kidney Beans at *lb.* 7 8½

654

37

12 - 24198

8 - 2016

252 1 3

C. Wt. of Garlick at *lb.* 7 9½

847

187

12.0 - 15838.9

4 - 1319

329 19 6 2

Drams of Ambergrease at *lb.* 7 10½

874

63

8.0 - 5506.2

2 - 688

344 2 9

Dozen of Stools at *lb.* 7 11½

831

191

12.0 - 15872.1

4 - 1322

330 13 4 2

Feather Bolsters at *lb.* 8 0½

467

193

12.0 - 9013.1

4 - 751

187 15 5 2

C. Wt. of Rice at *lb.* 8 1½

237

13

8 - 3381

4 - 422

105 13 1 2

Stone

Stone Wt. of Butter at $\text{lb. } 8 \frac{2}{3}$ Pecks of Walnuts at $\text{lb. } 8 \frac{6}{7}$

592
197

12.0 - 11662.4

4 - 971

242 19 4

Doz. of Brass Snuffers at $\text{lb. } 8 \frac{3}{4}$

459
199

12.0 - 9134.1

4 - 761

190 5 10 2

Ditto Cod Fish at $\text{lb. } 8 \frac{4}{5}$

472
67

8.0 - 3162.4

2 - 395

197 13

Hawks at $\text{lb. } 8 \frac{5}{8}$

835
203

12.0 - 16950.5

4 - 1412

353 2 8 2

473
41

12 - 19393

8 - 1616

202 0 2 2

China Bowls at $\text{lb. } 8 \frac{7}{8}$

645
69

8.0 - 4450.5

2 - 556

278 3 1 2

Iron Pots at $\text{lb. } 8 \frac{8}{9}$

803
209

12.0 - 16782.7

4 - 1398

349 12 9 2

Dozen of Meal Sieves at $\text{lb. } 8 \frac{9}{10}$

999
211

12.0 - 21078.9

4 - 1750

439 2 10 2

Ditto

(128)

Ditto. Pitchforks at $\text{lb. } 8 \text{ } 10\frac{1}{2}$

888
71

8.0 - 6304.8

2 - 788

394 1

Ditto. Penknives at $\text{lb. } 8 \text{ } 11\frac{1}{2}$

666
43

12 - 28638

8 - 2386

298 6 3

Fiddles at $\text{lb. } 9 \text{ } 0\frac{1}{2}$

444
217

12.0 - 9734.8

4 - 811

202 16 2

Hautboys at $\text{lb. } 9 \text{ } 1\frac{1}{2}$

222
73

8.0 - 1620.6

2 - 202

101 5 9

Dozen of Ling at $\text{lb. } 9 \text{ } 2\frac{1}{2}$

136
221

12.0 - 3005.6

4 - 250

62 12 4

Halberts at $\text{lb. } 9 \text{ } 3\frac{1}{2}$

834
223

12.0 - 18598.2

4 - 1549

387 9 3

Quilts at $\text{lb. } 9 \text{ } 4\frac{1}{2}$

652
15

8 - 9780

4 - 1222

305 12 6

Warming. Pans at $\text{lb. } 9 \text{ } 5\frac{1}{2}$

624
227

12.0 - 14164.8

4 - 1180

295 2

Apes

As the Examples would be too numerous to insert in this Section, I shall therefore abridge them, as I have done those in the first and following Sections, by giving only the Multipliers and Divisors.

Price.	Mult.	Div.	Price.	Mult.	Div.	Price.	Mult.	Div.
9 6 $\frac{1}{2}$	229	480	13 0 $\frac{1}{2}$	313	480	16 6 $\frac{1}{2}$	397	480
9 7 $\frac{1}{2}$	77	160	13 1 $\frac{1}{2}$	21	32	16 7 $\frac{1}{2}$	133	160
9 8 $\frac{1}{2}$	233	480	13 2 $\frac{1}{2}$	317	480	16 8 $\frac{1}{2}$	401	480
9 9 $\frac{1}{2}$	47	96	13 3 $\frac{1}{2}$	319	480	16 9 $\frac{1}{2}$	403	480
9 10 $\frac{1}{2}$	79	160	13 4 $\frac{1}{2}$	109	160	16 10 $\frac{1}{2}$	27	32
9 11 $\frac{1}{2}$	229	480	13 5 $\frac{1}{2}$	323	480	16 11 $\frac{1}{2}$	407	480
10 0 $\frac{1}{2}$	241	480	13 6 $\frac{1}{2}$	63	96	17 0 $\frac{1}{2}$	409	480
10 1 $\frac{1}{2}$	81	160	13 7 $\frac{1}{2}$	109	160	17 1 $\frac{1}{2}$	137	160
10 2 $\frac{1}{2}$	49	96	13 8 $\frac{1}{2}$	329	480	17 2 $\frac{1}{2}$	413	480
10 3 $\frac{1}{2}$	247	480	13 9 $\frac{1}{2}$	331	480	17 3 $\frac{1}{2}$	83	96
10 4 $\frac{1}{2}$	83	160	13 10 $\frac{1}{2}$	111	160	17 4 $\frac{1}{2}$	139	160
10 5 $\frac{1}{2}$	251	480	13 11 $\frac{1}{2}$	67	96	17 5 $\frac{1}{2}$	419	480
10 6 $\frac{1}{2}$	253	480	14 0 $\frac{1}{2}$	337	480	17 6 $\frac{1}{2}$	421	480
10 7 $\frac{1}{2}$	17	32	14 1 $\frac{1}{2}$	113	160	17 7 $\frac{1}{2}$	141	160
10 8 $\frac{1}{2}$	257	480	14 2 $\frac{1}{2}$	341	480	17 8 $\frac{1}{2}$	87	96
10 9 $\frac{1}{2}$	259	480	14 3 $\frac{1}{2}$	343	480	17 9 $\frac{1}{2}$	427	480
10 10 $\frac{1}{2}$	87	160	14 4 $\frac{1}{2}$	23	32	17 10 $\frac{1}{2}$	143	160
10 11 $\frac{1}{2}$	263	480	14 5 $\frac{1}{2}$	347	480	17 11 $\frac{1}{2}$	431	480
11 0 $\frac{1}{2}$	53	96	14 6 $\frac{1}{2}$	349	480	18 0 $\frac{1}{2}$	433	480
11 1 $\frac{1}{2}$	89	160	14 7 $\frac{1}{2}$	117	160	18 1 $\frac{1}{2}$	29	32
11 2 $\frac{1}{2}$	269	480	14 8 $\frac{1}{2}$	353	480	18 2 $\frac{1}{2}$	437	480
11 3 $\frac{1}{2}$	271	480	14 9 $\frac{1}{2}$	71	96	18 3 $\frac{1}{2}$	439	480
11 4 $\frac{1}{2}$	91	160	14 10 $\frac{1}{2}$	119	160	18 4 $\frac{1}{2}$	147	160
11 5 $\frac{1}{2}$	55	96	14 11 $\frac{1}{2}$	359	480	18 5 $\frac{1}{2}$	443	480
11 6 $\frac{1}{2}$	277	480	15 0 $\frac{1}{2}$	361	480	18 6 $\frac{1}{2}$	89	96
11 7 $\frac{1}{2}$	93	160	15 1 $\frac{1}{2}$	121	160	18 7 $\frac{1}{2}$	149	160
11 8 $\frac{1}{2}$	281	480	15 2 $\frac{1}{2}$	73	96	18 8 $\frac{1}{2}$	449	480
11 9 $\frac{1}{2}$	283	480	15 3 $\frac{1}{2}$	367	480	18 9 $\frac{1}{2}$	451	480
11 10 $\frac{1}{2}$	19	32	15 4 $\frac{1}{2}$	123	160	18 10 $\frac{1}{2}$	151	160
11 11 $\frac{1}{2}$	287	480	15 5 $\frac{1}{2}$	371	480	18 11 $\frac{1}{2}$	455	480
12 0 $\frac{1}{2}$	289	480	15 6 $\frac{1}{2}$	373	480	19 0 $\frac{1}{2}$	457	480
12 1 $\frac{1}{2}$	97	160	15 7 $\frac{1}{2}$	25	32	19 1 $\frac{1}{2}$	153	160
12 2 $\frac{1}{2}$	291	480	15 8 $\frac{1}{2}$	377	480	19 2 $\frac{1}{2}$	461	480
12 3 $\frac{1}{2}$	59	96	15 9 $\frac{1}{2}$	379	480	19 3 $\frac{1}{2}$	463	480
12 4 $\frac{1}{2}$	99	160	15 10 $\frac{1}{2}$	127	160	19 4 $\frac{1}{2}$	31	32
12 5 $\frac{1}{2}$	299	480	15 11 $\frac{1}{2}$	383	480	19 5 $\frac{1}{2}$	467	480
12 6 $\frac{1}{2}$	301	480	16 0 $\frac{1}{2}$	77	96	19 6 $\frac{1}{2}$	469	480
12 7 $\frac{1}{2}$	101	160	16 1 $\frac{1}{2}$	129	160	19 7 $\frac{1}{2}$	157	160
12 8 $\frac{1}{2}$	61	96	16 2 $\frac{1}{2}$	389	480	19 8 $\frac{1}{2}$	473	480
12 9 $\frac{1}{2}$	307	480	16 3 $\frac{1}{2}$	391	480	19 9 $\frac{1}{2}$	95	96
12 10 $\frac{1}{2}$	103	160	16 4 $\frac{1}{2}$	131	160	19 10 $\frac{1}{2}$	159	160
12 11 $\frac{1}{2}$	311	480	16 5 $\frac{1}{2}$	79	96	19 11 $\frac{1}{2}$	479	480

S E C T. III.

In this third Section are Examples, when the Price of the Integer is Pence, or Shillings and Pence.

When the Divisor is 240, I divide by 120, to bring the first Quotient into Angels, and the Remainder will be so many Pence. Then I take the Half of those Angels to bring them into Pounds, and if 1 remain 'tis an Angel or 10 Shillings, which being joyn'd to the first Remainder, gives the Number of Shillings and Pence remaining in all.

2. When the Divisor is 120, the Remainder is so many two Pences.
3. When the Divisor is 80, the Remainder is all 3 Pences.
4. When the Divisor is 60, the Remainder is Groats.
5. When the Divisor is 48, then I divide by 12, to bring the first Quote into Crowns, and the Remainder will be so many 5 Pences. Again, dividing those Crowns by 4, reduces them into Pounds, and the Remainder of this second Divison is all Crowns, which being joyn'd to the Remainder of the first Division, gives the Shillings and Pence remaining in all.
6. When the Divisor is 40, the Remainder is 6 Pences.
7. When the Divisor is 30, the Remainder is 8 Pences.
8. When the Divisor is 24, I divide by 12 to bring the first Quote into Angels, and the Remainder will be all 10 Pences. Then I go on with the rest of the Work according to the Directions given when the Divisor was 240.
9. When the Divisor is 16, I divide by 8, to bring the first Quote into Angels, and the Remainder will be all 15 Pences, or so many times *sh.* 1 3 then proceed with the rest of the Work, as when the Divisor was 24.
10. When the Divisor is 12, the Remainder is so many Pounds *Scots*, or 20 Pences.
11. When the Divisor is 8, the Remainder is so many half Crowns.
12. When the Divisor is 6, the Remainder is so many half Nobles or 40 Pences.
13. When the Divisor is 5, the Remainder is so many times *sh.* 4
14. When the Divisor is 4, the Remainder is so many Crowns.
15. When the Divisor is 3, the Remainder is so many times *sh.* 6 8 or Nobles.

Pints of Yest for Brewing at 1 d.

$$\begin{array}{r}
 12.0 - \quad 369.0 \\
 \hline
 2 - \quad 30 \\
 \hline
 15 \quad 7 \quad 6
 \end{array}$$

Account for every 1 that remains 10 Pence, which in this Example is 9, that is *sh.* 7 6, and whatever Figure that is upon the right Hand of the Dot, it is so many Pence, which must be added to the Number of 10 Pences,

Pences, but as there is a Cypher, therefore the said 9 Ten Pences is equal to 90 Pence, or *sh.* 7 6 as hath been already said.

Pewter Spoons at 2 d.

12.0- 479 6

39 19 4

Account for every one that remains *sh.* 1 8, which in this Example is 11, that is, *sh.* 18 4, and the Figure 6 on the right Hand of the Dot, is so many 2 Pences or *sh.* 1, this being added to the *sh.* 18 4 makes *sh.* 19 4 equal to 116 Two Pences

Pen. Wt. of Silver at 3 d.

8.0- 472.9

59 2 3

Account for every one that remains half a Crown, and for the Figure upon the right Hand of the Dot they are so many 3 Pences, which must be added thereto.

Pecks of Bran at 4 d.

6.0- 893.4

148 18 7

Account for every one that remains *sh.* 3 4 which in this Example is 5, that is, *sh.* 16 8, and the Figure 4 on the right Hand of the Dot, is so many Groats, or *sh.* 1 4, this being added to the *sh.* 16 8 makes *sh.* 18 or 54 Groats.

Mum Glasses at 5 d.

12- 1561

4- 130

32 10 5

Doz. of Loch-leeches at 6 d.

4.0- 243.7

60 18 6

Account for every 1 that remains 5 *sh.* or a Crown, which in this Example is 3, that is, *sh.* 15, and the Figure 7 on the right Hand of the Dot, is so many 6 Pences, or *sh.* 3, 6, this being added to the *sh.* 15, makes *sh.* 18 6 or 37 Six Pences.

Italian Ryals at 7 d.

2383

7

12.0- 1668.1

2- 139

69 10 1

lb. of Links at 8 d.

3.0- 299.5

99 16 8

Account for every one that remains *sh.* 6 8. or a Noble, which in this Example is 2, that is, *sh.* 13 4, and the Figure 5 on the right Hand of the Dot, is so many 8 Pences, or *sh.* 3 4, this being added to the *sh.* 13 4, makes *sh.* 16 8, or 25 eight Pences.

R 2

Leg-

Legborn Livres at 9 d.

4065
3
 8.0- 1219.5
152 8 9

Otter Skins at 10 d.

12- 1557
2- 129
64 17 6
 Sand Glasses at 11 d.
 845
11
 12.0- 929.5
77
38 14 7

Pairs of Callipers at $\text{sh. } 1 \text{ } 1$

6529
13
 12.0- 8487.7
707
353 13 1

Trevets at $\text{sh. } 1 \text{ } 2$

3786
7
 12.0- 2650.3
220 17

Portuguese Festoons at $\text{sh. } 1 \text{ } 3$

7832
2- 979
489 10

Flambeaux at $\text{sh. } 1 \text{ } 4$

4597
2
 3.0- 919.4
306 9 4

Gallons of Vinegar at $\text{sh. } 1 \text{ } 5$

4712
17
 12.0- 8010.4
667
333 15 4

French Livres at $\text{sh. } 1 \text{ } 6$

4276
3
 4.0- 1282.8
320 14

Oz. of English Saffron at $\text{sh. } 1 \text{ } 7$

7954
19
 12.0- 15112.6
1259
639 13 10

(133)
lb. of Ginger at lb. 1 8

12- 8574
714 19

Portuguese single Milrees at lb. 1 9

4279

7

8.0- 2995.3
374 8 3

Holland Guilders at lb. 1 10

3982

11

12.0- 4380.2
365 0 4

Yards of Drugget at lb. 1 11

6986

23

12.0- 16067.8
2- 1338
669 9 10

Ditto Mulline at lb. 2 1

984

5

12- 4920

4- 410

102 10

lb. of Lock Seed at lb. 2 3

8830

13

12.0- 1147.9

95 13 2

Silver Thimbles at lb. 2 3

843

9

8.0- 758.7

94 16 9

lb. of Hops at lb. 2 4

297

7

6.0- 697.9

116 16 4

lb. of Manna at lb. 2 5

784

29

12.0- 2273.6

2- 189 0 18

94 14 8

Palermo Florins at lb. 2 8

8- 549.5

68 11 6

8006

206

4 8 27

Zea

Zealand Dollars at *lb.* 2 7 ((134))

606
31

12.0- 1878.6

2- 156

78 5 6

Doz. of Grindstones at *lb.* 2 8

246
4

3.0- 98.4

32 16

Silver Broaches at *lb.* 2 9

885
11

8.0- 973.5

121 13 9

St. Mark Ducats at *lb.* 2 10

487
17

12.0 827.9

68 19 10

Oz. of Musk at *lb.* 2 11

524
7

12- 3668

4- 305

76 8 4

Pairs of Silver Clasps at *lb.* 3 1

476
37

12.0- 1761.2

2- 146

73 7 8

Hamburg Dollars at *lb.* 3 2

579
19

12.0- 1100.1

91 13 6

Silver Picktooths at *lb.* 3 3

473
13

8.0- 614.9

76 17 3

lb. of Cardamoms at *lb.* 3 4

6- 263

43 16 8

lb. of Sarsaparilla at *lb.* 3 5

572
41

12.0- 2345.2

2- 195

97 14 4

Pea-

Peacocks at *lb.* 3 6

924
7
—
4.0- 646.8
—
161 14

Thrushes at *lb.* 3 7

457
43
—
12.0- 1965.1
—
2- 163
—
81 17 10

Doz. of Scissors with Cases, at *lb.* 3 8

732
11
—
6.0- 805.2
—
134 4

Elephants at *lb.* 3 9

999
15
—
8.0- 1498.5
—
187 6 3

Horse-whips at *lb.* 3 10

498
23
—
12.0- 1145.4
—
95 9

lb. of Mohair at *lb.* 3 11

623
47
—
12.0- 2918.1
—
2- 244
—
122 0 1

Dozen of Pendants at *lb.* 4 1

832
49
—
12.0- 3776.8
—
2- 314
—
157 7 4

Lumenburgh Dollars at *lb.* 4 2

834
25
—
12.0- 2085.0
—
173 15

Ferdinando Dollars at *lb.* 4 3

834
17
—
8.0- 1417.8
—
177 4 6

lb. of quick Silver at *lb.* 4 4

484
13
—
6.0- 629.2
—
104 17 4

Max-

(136)
Maximilian Dollars at sh. 4 5

686
 53
 —
 12.0- 3635.8

2- 302
 —
 151 9 10

lb. of Wormseed at sh. 4 6
 555
 9
 —

4.0- 499.5
 —
 124 17 6

lb. of Maltick at sh. 4 7
 111
 11
 —

12- 1221
 —
 4- 101
 —
 25 8 9

Riga Dollars at sh. 4 8
 789
 7
 —

3.0- 552.3
 —
 184 2

Messina Ducats at sh. 4 9
 707
 19
 —

8.0- 1343.3
 —
 167 18 3

Valentia Ducats at sh. 4 10
 909
 29
 —

12.0- 2636.1
 —
 219 13 6

Saragossa Ducats at sh. 4 11
 723
 59
 —

12.0- 4265.7
 —
 2- 355
 —
 117 14 9

Tortois-shell Combs at sh. 5 1
 835
 61
 —

12.0- 5093.5
 —
 2- 424
 —
 212 4 7

Yards of Musline at sh. 5 2
 483
 31
 —

12.0- 1497.3
 —
 124 15 6

Oz. of white Plate at sh. 5 3
 979
 21
 —

8.0- 2055.9
 —
 256 19 9

Bar.

(137)
Barcelona Ducats at lb. 5 4

987
8

3.0- 789.6

63 4

C. Wt. of Pitch at lb. 5 5

977
13

12- 12701

4- 1058

264 12 1

lb. of Hypocacuana at lb. 5 6

837
11

4.0- 1020.7

255 3 6

Doz. of Turtle Doves at lb. 5 7

423
67

12.0- 2834.1

2- 236

118 1 9

Buck Skins at lb. 5 8

491
17

6.0- 834.7

139 2 4

Wt. of Lavender at lb. 5 9

241
23

8.0- 554.3

69 5 9

Yards of Cambrick at lb. 5 10

979
35

12.0- 3426.5

285 10 10

Doz. of Horse-Brushes at lb. 5 11

472
71

12.0- 3351.2

2- 279

139 12 8

Olive Pyes at lb. 6 1

274
73

12.0- 2000.2

2- 166

83 6 10

Hund. of Apricocks at lb. 6 2

992
37

12.0- 3670.4

305 17 4
S Hol-

Holland Ducats at lb. 6, ⁽¹³⁸⁾ Half Cardinal-Angels at lb. 6 4

342
25
8.0- 855.0

106 17 6

473
19
6.0- 898.7

149 15 8



Here

Here follow the Price, Multipliers and Divisors to the following Examples in this Section, which ends with Pence.

Price	Mult.	Div.	Price	Mult.	Div.	Price	Mult.	Div.
6 5	77	480	9 8	29	60	12 10	77	120
6 6	13	40	9 9	39	80	12 11	31	48
6 7	79	480	9 10	59	120	13 1	157	240
6 8	0	3	9 11	119	240	13 2	79	120
6 9	27	80	10 1	121	240	13 3	53	80
6 10	41	120	10 2	61	120	13 4	2	3
6 11	83	240	10 3	41	80	13 5	161	240
7 1	17	48	10 4	31	60	13 6	27	40
7 2	43	120	10 5	25	48	13 7	163	240
7 3	29	80	10 6	21	40	13 8	41	60
7 4	11	30	10 7	127	240	13 9	55	80
7 5	89	240	10 8	16	30	13 10	83	120
7 6	3	8	10 9	43	80	13 11	167	240
7 7	91	240	10 10	65	120	14 1	169	240
7 8	23	60	10 11	131	240	14 2	85	120
7 9	31	80	11 1	133	24	14 3	57	80
7 10	47	120	11 2	67	120	14 4	43	60
7 11	19	48	11 3	45	80	14 5	173	240
8 1	97	240	11 4	17	30	14 6	129	40
8 2	49	120	11 5	137	240	14 7	35	48
8 3	33	80	11 6	23	40	14 8	22	30
8 4	5	12	11 7	139	240	14 9	59	80
8 5	101	240	11 8	7	12	14 10	89	120
8 6	17	40	11 9	47	80	14 11	179	240
8 7	103	240	11 10	71	120	15 1	181	240
8 8	13	30	11 11	143	240	15 2	91	120
8 9	35	80	12 1	29	48	15 3	61	80
8 10	53	120	12 2	73	120	15 4	23	30
8 11	107	240	12 3	49	80	15 5	37	48
9 1	109	240	12 4	37	60	15 6	31	40
9 2	55	120	12 5	149	240	15 7	187	240
9 3	37	80	12 6	5	8	15 8	47	60
9 4	14	30	12 7	151	240	15 9	63	80
9 5	113	240	12 8	19	30	15 10	95	120
9 6	19	40	12 9	51	80	15 11	191	240
9 7	23	48						

			(140)					
Price	Mult.	Div.	Price	Mult.	Div.	Price	Mult.	Div.
16 1	193	240	17 5	209	240	18 9	75	80
16 2	97	120	17 6	7	8	18 10	113	120
16 3	65	80	17 7	211	240	18 11	227	240
16 4	49	60	17 8	53	60	19 1	229	240
16 5	197	240	17 9	71	80	19 2	115	120
16 6	33	40	17 10	107	120	19 3	77	80
16 7	199	240	17 11	43	48	19 4	29	30
16 8	5	6	18 1	217	240	19 5	233	240
16 9	67	80	18 2	109	120	19 6	39	40
16 10	101	120	18 3	13	80	19 7	47	48
16 11	203	240	18 4	11	12	19 8	59	60
17 1	41	48	18 5	221	240	19 9	79	80
17 2	103	120	18 6	37	40	19 10	119	120
17 3	69	80	18 7	223	240	19 11	239	240
17 4	26	30	18 8	28	30			

S E C T. IV.

In this Fourth Section are Examples, when the Price of the Integer is only Shillings.

Shillings are practically reduced into Pounds thus, *viz.* Cut off the Figure standing in the place of Units with a Dot, and note it for Shillings, then draw a Line under the given Number, and take Half of the remaining Figures (after the first is cut off) and set them under the Line, and they are so many Pounds; but if the last Figure is odd, then take the lesser Half, and add 10 to the Figure so cut off, for Shillings.

If the Price of the Integer is *lb.* 2, then cut off the Figure in the place of Units of the given Number, and double it for Shillings, and the Figures on the other Hand are Pounds.

If the Price of the Integer be any other Number of Shillings, the shortest Way is by decimal Arithmetick, remembring that the first Figure to the right Hand of the Separatrix is a double Number of Shillings: If the second Figure be 5, add thereto one Shill. more; but if it happen to be a Cypher, you are to take no Notice of it. Remember likewise, tho' the Price be an odd Number of Shillings, and the given Number can be halved, it may be wrought with the same Ease vulgarly as if the Price were an even Number of Shillings; That is to say, if the half of the Number 390 be taken, and multiplied by 17 (see Page 142) and double the first Figure produced to the Right Hand for Shillings, the rest will be Pounds, and as soon done as decimally.

E X-

EXAMPLES.

Yards of Shalloon at *£* 1

437.7

218.17

Garden Spades at *£* 2

98.7

98.14

Common Zealand Dollars at *£* 3

779

.15

116.85

Yards of Musline at *£* 4

5- 857

171 8

Ounces of Silver at *£* 5

4- 841

210 5

Silver Seals at *£* 6

717

.3

215.1

Gal. of Jamaica Rum at *£* 7

331

.35

115.85

Turkish Sultanines of Gold at *£* 8

646

.4

258.4

Ditto Zeckins at *£* 9

598

.45

269.10

lb. of Opium at *£* 10

241

.5

120.5

lb. of Bohea Tea at *£* 11

837

.55

460.35

Ditto Congo at *£* 12

724

.6

434.4

Flanders Albertus at *£* 13

864

.65

561.60

Bundles

Bundles of Yarn at *sh.* 14

331

.7

231.7

Yards of Silk Damask at *sh.* 17

390

.85

331.50

C. Wt. of *Malaga* Raisins at *sh.* 15

902

.75

676.50

C. Wt. of Figs at *sh.* 18

598

.9

538.2

lb. of green Tea at *sh.* 16

646

.8

516.8

Silk Scarfs at *sh.* 19

885

.95

840.75

Having thus given you Examples betwixt one Farthing and a Pound Sterling, I shall therefore now proceed to

C H A P. II.

S E C T. I.

WHere the Price of the Integer is Pounds and Farthings, Pounds, Pence and Farthings, Pounds, Shillings and Farthings, with Pounds, Shillings, Pence and Farthings.

Sable Tippetts at *L.* 100 $\frac{3}{4}$

12.0-

453.6

8-

37

4 14 6

454.0

Organs at *L.* 90 $\frac{1}{4}$

8.0-

73.2

4-

9

2 5 9

659.0

N. B. Any Example whatsoever given, when the Price of the Integer is Pounds, and ends with one Farthing, that you may answer the Question rightly, according to this new contracted Method, you must first work for the odd Farthing by the Directions given you in the Beginning of Chap.

Chap. I. Sect. 1. where the Divisor is 960, the First of the two foregoing Examples being the same over again, and is here purposely inserted, that the Learner may the better understand it. Then for the Pounds, after you have found out the Value of the Farthings, multiply the Integer by the Number of Pounds that the Question is stated at, taking in what Pounds the Number of Farthings amount to at the same Time, and you have done.

Also in this Example at *L. 9 8 0 1*, observe the Directions given in Section 1. where the Divisor is 320, by which you'll find the Integer at 3 *qrs.* will amount to *L. 2 5 9*; therefore let the *sh. 5 9* stand as you see above, without setting it down over again; and for the *L. 9* multiply your Integer 732 thereby, taking in the odd *L. 2* at the same Time, and the total Value will amount to *L. 6590 5 9*.

Sakers at *L. 6 0 1 1*

12- 776

8- 64

2- 8

4 0 10

4660

Horses at *L. 2 1 0 1*

372

17

8.0- 632.4

4- 79

19 15 3

763

38 Latt of Feathers at *L. 4 12 4 2* Doz. of Vel. Caps at *L. 3 17 9 1*

38

99

8.0- 376.2

2- 47

23 10 3

175

963

57

8- 54891

3- 6861

857 13 5 1

See Page 39 for this Example, and that at *L. 3 5 6* in Sect. 2. which may account for not giving the other Examples promised there.

SECT.

S E C T. II.

Where the Price of the Integer is Pounds and half Pence,
 Pounds, Pence, and half Pence,
 Pounds, Shillings, and half Pence,
 Pounds, Shillings, Pence, and half Pence.

Cows at L. 2 0 0 $\frac{1}{2}$

$$\begin{array}{r}
 12.0- \quad 279.5 \\
 \hline
 4- \quad 23 \\
 \hline
 \quad 5 \quad 16 \quad 5 \quad 2 \\
 \hline
 5595
 \end{array}$$

Dromedaries at L. 3 0 $\frac{1}{2}$

$$\begin{array}{r}
 8.0- \quad 42.6 \\
 \hline
 2- \quad 5 \\
 \hline
 \quad 2 \quad 13 \quad 3 \\
 \hline
 1280
 \end{array}$$

In all Examples when the Price of the Integer is Pounds, and ends with half Pence, observe the Directions given in *Chap. I. Sect. 2.* where the Divisor is 480, remembring to reckon 5 Pence for each one that remains in the first Division, to which add so many half Pence as the Figure to the right Hand of the Dot is of Value, which, in the first of the foregoing two Examples, having said the Twelves in 27 2 Times, the Twelves in 29 3 Times, and 3 remains, which is *sh.* 1 3, and the Figure 5 upon the right Hand of the Dot being 5 half Pence, or 2 *d.* $\frac{1}{2}$, this added to the *sh.* 1 3, makes *sh.* 1 $3\frac{1}{2}$ for the first Remainder; then dividing 23 by 4, I get 5 Times, and 3 remains, which is three Crowns, or *sh.* 15, this with the *sh.* 1 $3\frac{1}{2}$ remaining in the first Division, makes *sh.* 16 $5\frac{1}{2}$; so that I find 2795 half Pence amounts to L. 5 16 $5\frac{1}{2}$. And for the L. 2 I multiply the given Integer 2795 by 2, saying, 2 Times 5 is 10, and taking in the odd L. 5 that remained when I wrought for one half Penny, is 15, 5 and carry 1, 2 Times 9 is 18, and 1 I carried is 19, 9 and carry one, 2 Times 7 is 14, and 1 I carried is 15, 5 and carry one; then 2 Times 2 is 4, and 1 I carried is 5; so by this Means I find the Value of 2795 Cows at L. 2 0 0 $\frac{1}{2}$ per Piece, amounts exactly to L. 5595 16 5 2.

Hund. Deal Boards at L. 8 1 1/2

473	
5	
12-	2365
8-	197
	24
	3808

Faggots of Steel at L. 2942

421	
15	
82	6315
4-	789
	197
	1039

SECT. III.

Where the Price of the Integer is Pounds and Pence,
Pounds, Shillings, and Pence.

Weys of Wooll at L. 201

12.0-	369.0
	30
2	15
	76
	7395

26 Bar. of Gun-powder at L. 356

26	
11	
40-	28.6
	73
	85

SECT. IV.

Where the Price of the Integer is Pounds and Shillings.

Guineas at L. 11

31.1	
15	11
	326

Bales of Paper at L. 32

36.5	
36	10
	1131

See the Directions given in Chap. I. Sect. 4. When the Price of the Integer has either 1 or 2 Shillings added to any Number of Pounds, if the Price of the Integer is Pounds, with an even Number of Shillings, such as the

the above Example of Paper at L. 3 2 per Bale, the quickest Way to answer the Question, is to multiply the given Number by half the Shillings of the Price, doubling the first Figure to the right Hand, and setting it apart for Shillings, and the rest will be Pounds. As for Instance, Suppose one desired to know what 365 Bales of Paper, or any other Thing at L. 3 2 per Bale, would amount to, I multiply 365, the Number of Bales, by 31, half the Number of Shillings each Bale cost, that is to say, the Half of L. 3 2, and the Product is 11315, which 5 being doubled, as above directed, the Solution to the Question is the very same as before.



Section II. Directions given in Chap. I. Sect. 4. When the Price of the Integer is Pounds and Pence, and the Price of the Integer is Pounds, Shillings, and Pence.



APPENDIX.

BY the foregoing Rules of *Practice*, and that of Multiplication of Money, see Page 36. we have the shortest Methods of casting up the several Articles in each Bill (that may relate either to Retailers of small Parcels, or Merchants who deal in wholesale Trade, as Mercers, Woollen and Linen Drapers, Grocers, Haberdashers of Hats, Hosiery, Fishmongers, Leatherfellers, Pewterers, Tobacconists, Cornchandlers, Stationers, Bricklayers, &c.) such as any Number of Yards (at what Price soever) of rich flower'd Sattin, sprigg'd Tabby, Farrindon, Mohair, Lustring, *Venetian* Silk, flower'd Damask, *Genoa* Velvet--; fine *Spanish* Black, mixt or grey Cloth, Frize, Drap-de-berry--; Ells, Yards or Pieces of Dowlas, Lockram, Holland, Cambrick, Diaper, Damask, Muslin--; Hundred Weight of Sugar, Raisins, Tobacco, Rice, Pepper, Brimstone--; Hats, coarse or fine--; Pairs of Men or Womens worsted, silk, woollen and thread Hose, or Yards of Flannel--; Hundred of Ling, Haberdine, Stock Fish, or Barrels of white and red Herrings, Salmon--; Lamb, Goat, Sheep, Calve and Buck Skins, or *Russia* Hides--; Metal Dishes, Plates, Chamber Pots, Standishes, Tankards, Spoons, Porringers, Salts, Castors--; Hogsheds, Boxes, Bags, or Rolls of Tobacco--; Quarters or Bushels of Oats, Beans or Bran--; Reams of demy Paper, Fools-cap, *French* Royal, or Rolls of Parchment--; Thousand of Bricks, plain Tiles, C. of Lime, Loads of Sand, or C. Ridge Tiles. Before I proceed further, I shall give you the following two necessary Examples.

I.
Sold 5 C. $\frac{1}{2}$ of Sugar at

L. 2 12 4 per C.

5

13 01 8

1 06 2

L. 14 07 10

II.
Bought 4 Yards $\frac{1}{4}$ of Genoa Velvet
at

L. 1 1 6 per Yard.

4 sh. 21 6

5

4 6 0

13 5 1 8 107 6

L. 4 19 5 1 sh. 13 5 1

In the first Example the Price is multiplied by the Quantity, and one Half of the given Price added thereto, as being the Value of the half Hundred Weight. In the second Example, the Price is likewise multiplied by the Quantity, *viz.* 4 Yards $\frac{1}{4}$, according to the Rules delivered in Multiplication of Money, and the Product by 4 is L. 4 6, then for the $\frac{1}{4}$ of a Yard, I multiply the Price of the Integer, *viz.* 21 sh. 6 *d.* by the Numerator of the Fraction, *viz.* 5, and divide by the Denominator 8, and the Quotient is 13 sh. 5 *d.* 1 *qr.* which being added to the Product of 1 L. 1 sh. 6 *d.* multiplied by 4, gives L. 4 19 5 $\frac{1}{4}$, as in the Operation above.

To cast up Things in wholesale Trade, bought and sold by the Thousand, as you have in Page 52.

The Rule is.

Multiply the given Number by the Shillings in the Price (if the Price be at so many Shillings *per* Thousand) and always cut off 3 Figures or Places towards the Right-hand, and the Figures towards the Left-hand are Shillings, which divide by 20. to bring 'em into Pounds, and those Figures separated towards the Right-hand, multiply by 12, the next inferior Denomination, and still cut off or separate three Places towards the Right-hand, and the Figures towards the Left are Pence, and the three last Figures cut off, multiply by 4, and still separate three Places towards the Right-hand, and the Figures towards the Left are Farthings.

And

And if the Price be Shillings and Pence per Thousand, then reduce the Price into Pence, and multiply the given Number by the Pence contained in the Price, cutting off three Places towards the Right-hand as aforesaid, and the Figures towards the Left are Pence, which bring into Pounds, according to Rule, and multiply the Remainder or Figures cut off by 4, &c.

EXAMPLES.

I. 4237 Squirrel Skins at 14 sh.
14 per Thousand

shil. 5.91318	318
	12
or L. 2.19	3.816
	4
	3.264

II. 6437 Tennis Balls at 12 sh. 9. d.

133	12
Pence 984.861	133
Divide by 12)	4
20) sh. 8.2	

L. 4.2 0 and $\frac{344}{1000}$ of a Penny, or 3 q.

1000 of a Farthing.

The Answer to the first Example is 2 L. 19 sh. 3 d. 3 q. since $\frac{318}{1000}$ of a Shilling is equal in Value to 3 d. 3 q.

And the Answer to the second Example is 4 L. 2 sh. 0 d. 3 q. since $\frac{861}{1000}$ of a Penny is equal to 3 q.

When Things bought by the Thousand and retail'd by the Hundred, as particularly Dutch and English Pan Tiles, then follow this Rule, viz.

Multiply the given Quantity by the Price, whether Shillings, or Shillings and Pence. If Shillings, multiply by the Number of Shillings, and cut off two Figures or Places towards the Right-hand, and those towards the Left are Shillings, which reduce to Pounds, as usual, and what remains, that is, the Figures cut off, multiply by 12, and again cut off two Figures more towards the Right-hand, and the Figures to the Left are Pence, and what remains multiply by 4, &c.

If the Price be Shillings and Pence, multiply by the Pence contained in the Price, and proceed as before, and then the Figures to-

towards the Left-hand will be Pence, which reduce to Pounds, according to Rule.

E X A M P L E S

I.
 1728 Pan-tiles at 8 *sh.* per C.
 8
 ————
sh. 138124
 12
 ————
d. 2188
 4
 ————
q. 3152

That is 6 *L.* 18 *sh.*
 2 *d.* 3 *q.* and $\frac{12}{100}$
 of a Farthing.

II.
 4097 Stock Bricks at 3 *sh.* 2 *d.* per C.
 38 Pence.
 ————
 Pence 1556186
 4
 ————
 Farth. 344

That is 6 *L.* 9 *sh.* 8 *d.*
 3 *q.* and $\frac{12}{100}$ of a Far-
 thing, or $\frac{86}{100}$ of a Penny.

This Method is preferable to Practice, because of its Exactness, for the odd Number above Thousands or Hundreds, which would be puzzling, to be very exact as to the odd Number; but by this Method, the Question is solved to the 1000 or 100 Parts of a Farthing, as may be seen by the foregoing Examples of Operation.

N. B. Sometimes the Money of a Bill is paid presently, then the Receipt is made as follows. *Received the 1 of May 1731. of Mr. James Hay, the Sum of Fiftyeight Pounds, &c. in full of this Bill, and of all Accounts for my Master George Innes, per A. B.*

If Part of the Bill is paid, write thus.

Received of Mrs. Sarah Bruce ten Pounds twelve Shillings, in Part of Payment, for my Master Thomas Walker, per C. D.

L. *sh.* *d.*
 } 10 12 00

To draw the Whole to a Conclusion, I shall give you two or three Examples, upon

Simple

Simple Interest.

Which ariseth or is computed from the Principal only. As for compound Interest, it is called Interest upon Interest, because it ariseth both from the Principal and Interest thereof; so that it is accounted very unlawful, and is seldom or never allowed, but by particular Contract, or Valuation of Money, sometimes on Purchases. And since the best Way of working this Sort of Interest is by Decimals, it is therefore designedly omitted here.

EXAMPLES.

Ex. I. What is the Interest of first Example produce in seven 318 L. for a Year, at 6 per Cent. Years, at the same Rate of Interest per annum?

$$\begin{array}{r}
 \text{L.} \quad \text{L.} \quad \text{L.} \\
 \text{If } 100 \quad 6 \quad 318 \\
 \hline
 19108 \\
 20 \\
 \hline
 1160 \\
 12 \\
 \hline
 7120
 \end{array}$$

Answer L. 19 1 7.

Note. The cutting off two Figures to the right Hand, divides such Lines by 100.

Ex. II. To find the Interest of any Sum for two or more Years, multiply the Year's Amount by the Number of Years required. What Interest will the Principal of the

Ex. III. What is the Interest of L. 148 13 4 for one Year, at 5 per Cent. per annum?

$$\begin{array}{r}
 \text{L.} \quad \text{lb.} \quad \text{d.} \\
 148 \quad 13 \quad 4 \\
 \hline
 743 \quad 06 \quad 8 \\
 20 \\
 \hline
 8166 \quad 18 \quad 8 \\
 12 \\
 \hline
 8100 \\
 \text{Facit } 7 \text{ L. } 8 \text{ lb. } 3 \text{ d.}
 \end{array}$$

Ex.

(15221)

L. sh. d. qrs.
 368 15 3 6

Which amount is compounded Interest upon Interest, because it is
 compound Interest, which both the principal and interest are
 counted very uniformly, particular Compound Interest, and since the
 chases. And since the principal is not working this sort of Interest is
 by Decimals, it is therefore highly omitted here.

Ex. IV. What is the Interest
 of L. 368 15 3 for one Year
 at 6½ per Cent?

2212 11 6
 184 7 7
 23196 19 1 2
 20
 19139
 12
 4169
 4
 2178

Facit 23 L. 19 sh. 4 d. 2 q.

The common Way used by Bankers, for casting up the Interest
 of any Sum of Money, for any Number of Days, is to reduce
 the Sum all into Pence, then multiply that Pence by the Number of
 Days it is out at Interest, and divide by 7300, for 5 per Cent. and
 6083 for 6 per Cent. which are the Days of a Year multiplied by 100,
 and divided by the Rate of Interest; and for the Truth and Proof
 thereof, I shall, after this Method, work the first Example over again.

Ex. III. What is the Interest
 of L. 148 10 s. for one
 Year, at 5 per Cent. per annum?

318
 240
 76320
 365
 (12)
 6083) 27856800 (4579
 24332

38.1
 35248
 30415 L. 19 1 7
 48330
 42581 8818

The Answer is 19 L. 1 sh. 7 d. 2 q. as before.

57490
 54747
 2743

F I N I S.



